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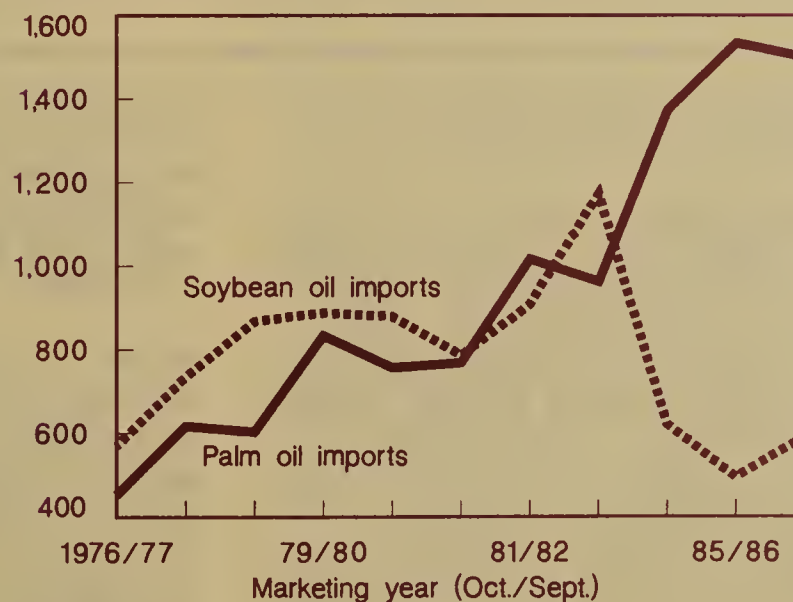
# South Asia

## Situation and Outlook Report

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### Palm Oil Secures Dominant Share of South Asian Edible Oil Market

Thousand tons



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Notes: Discussion of Afghanistan has been omitted from this report because of the lack of meaningful information on that country since the Soviet incursion in December 1979. Farm production is normally reported by split years that include all crops grown under the influence of the same monsoon (e.g., 1984/85 includes crops harvested in fall 1984 through spring 1985). Split marketing and fiscal years are frequently used in the analysis and are defined when first used. Unless otherwise specified, rice data are for milled rice, dollars are U.S. dollars, and measures are metric.

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## SUMMARY

### *SOUTH ASIA'S IMPORTS OF U.S. FARM PRODUCTS CONTINUE TO DECLINE*

U.S. agricultural exports to South Asia are projected to decline 20 percent to \$414 million in fiscal 1987. A sharp drop in Pakistan's wheat imports and falling prices are expected to more than offset increases in wheat volume to Bangladesh and Sri Lanka, and in soybean oil to Pakistan. If P.L. 480 programs remain at current funding levels, they will account for about 60 percent of U.S. sales to the region.

In fiscal 1986, U.S. farm exports to South Asia fell 13 percent to an estimated \$523 million, the fourth consecutive decline. As in the previous 3 years, the value of the major U.S. exports--wheat, soybean oil, and inedible tallow--declined. Key factors in the decrease were improved local food grain supplies and stiffening competition from other exporters, particularly for sales of wheat and soybean oil. Concessional and credit programs played an increasingly important role in maintaining U.S. market share, accounting for about 75 percent of U.S. farm exports to the region.

South Asia's economic performance remained relatively strong during 1985/86, with most countries achieving higher or above-trend growth. There was sustained growth in farm output and generally good industrial sector performance, particularly in India and Pakistan. Balance of payments pressures also eased for most countries, with either smaller trade deficits or larger foreign capital inflows allowing foreign reserves to rise slightly.

Steady growth is forecast for most South Asian economies in 1986/87. Near-normal 1986 monsoon rainfall and expanding industrial output are expected to lead to further growth in both farm and nonfarm sectors in Bangladesh, India, and Pakistan. However, setbacks are likely in Sri Lanka and Nepal because of weather-induced declines in farm output. Although lower petroleum prices likely will ease import bills, balance of payments pressures will remain intense because of sluggish export growth, reduced inflows of foreign remittances, and rising debt

obligations. Recent growth rates in most of the region's economies probably cannot be sustained over the next 5 years because of difficulty in achieving development investment targets through domestic resource mobilization and export expansion. Economic and policy developments are not likely to stimulate any substantial increase in South Asia's agricultural imports through 1990.

South Asia produced record rice and wheat crops in 1985/86. Regional wheat imports fell 5 percent to about 3.5 million tons during July 1985-June 1986, the fourth consecutive decline, despite larger imports by Pakistan to compensate for earlier crop shortfalls. However, U.S. wheat exports to the region rose 27 percent to about 1.9 million tons because of concessional and credit sales to Pakistan. Rice imports are estimated at 460,000 tons in both 1985 and 1986, 60 percent below 1984. India maintained a large wheat surplus, exporting about 600,000 tons in 1985/86, and regional rice exports, primarily by Pakistan, are estimated at 1.2 million tons in both 1985 and 1986.

In 1986/87, Bangladesh, India, and Pakistan are forecast to harvest record or near-record wheat and rice crops, but Nepal and Sri Lanka may have sharply smaller rice harvests. South Asian wheat imports are projected to fall 15 percent to about 2.9 million tons, with a substantial drop in Pakistan's requirements more than offsetting larger imports by Bangladesh, Sri Lanka, and Nepal. U.S. wheat exports to South Asia are forecast to fall 35 percent to 1.2 million tons because of reduced sales to Pakistan. India and Pakistan will have large wheat surpluses and their exports could exceed the current 700,000-ton forecast. The 5-year outlook for the region's food grain sector calls for a further decline in both wheat and rice imports, a small increase in rice exports, and the possibility of larger wheat exports by India and Pakistan.

The region's edible oil imports were off 2 percent from a year earlier to an estimated 2.21 million tons in 1985/86 (October/September). India reduced imports despite lower production to strengthen



internal prices, while Pakistan raised imports despite record production to keep internal prices low. Palm oil's share of the region's oil imports climbed to a 10-year high of about 70 percent, while the soybean oil share fell to a 10-year low of about 22 percent. However, concessional and credit sales to Pakistan boosted U.S. soybean oil exports to the region about 20 percent to an estimated 297,000 tons.

In 1986/87, South Asian edible oil imports are forecast to rise to 2.3 million tons. Reduced stocks are expected to boost India's imports moderately despite higher production, while Pakistan's imports show sustained growth. Although lower-priced palm oil is forecast to maintain its dominant market share, soybean oil's share is likely to rise because of reduced Indian stocks and continued concessional and credit sales of U.S.

soybean oil to Pakistan. The 5-year outlook indicates little or no growth in the region's annual edible oil imports, primarily because of projected production gains in India.

Pakistan's and India's 1985/86 cotton crops eclipsed their year-earlier records by 23 and 6 percent, respectively, largely because of increased use of improved varieties and inputs. Pakistan's exports soared to a world-high 3 million bales during August 1985-July 1986, aided by highly competitive prices and lack of U.S. competition. India's exports also rose. Weakening prices are forecast to reduce cotton production in both countries in 1986/87, and the re-emergence of competitively priced U.S. cotton is expected to reduce Pakistan's exports. The 5-year outlook indicates further growth in production and a sustained high level of exports, particularly by Pakistan.

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## ECONOMIC AND POLICY DEVELOPMENTS AND OUTLOOK

### Overview

#### *Growth Remains Relatively Strong in 1985/86*

Economic performance remained relatively strong in South Asia during 1985/86, with most countries achieving higher or above-trend growth. Good weather led to sustained growth in farm output throughout the region. Key farm sector developments included record rice crops in Bangladesh, India, and Sri Lanka, and record harvests of wheat and cotton in India and Pakistan. Performance in the region's nonfarm sectors was also generally good, with Pakistan's industrial output sustaining high growth and the pace of India's industrial expansion quickening for the fourth consecutive year. However, severe financial constraints continued to hamper industrial performance in Bangladesh, and civil unrest impeded industrial investment and growth in Sri Lanka. All countries in the region, particularly India and Pakistan, continued to place high priority on stimulating industrial investment, productivity, and output.

Conservative monetary and fiscal policies, improved supplies of food staples, and stable energy costs contributed to stable or declining rates of inflation in the region in 1985/86. Governments in the region are typically sensitive to movements in food prices, which are the key determinant of the inflation rate, and reduced pressure on food prices was a key factor in reducing the region's food imports during 1985/86. However, in all countries there was concern with potential inflationary pressure created by large budget deficits. These deficits stem from efforts to achieve development investment targets in the face of inadequate domestic savings, sluggish exports, and rising interest payments on domestic and foreign debt.

#### *Balance of Payments Pressures Ease Temporarily*

The tight balance of payments positions of most countries in the region eased in 1985/86, with either a smaller trade deficit or larger foreign inflows contributing to a small buildup of foreign reserves. Lower petroleum prices reduced import bills in all countries except India, where liberalization measures contributed to a sharp rise in imports.



However, exports remained sluggish and only Pakistan was able to significantly boost export earnings, primarily from cotton, rice, and garments, even in the face of weak world prices.

Remittances from workers employed in the Middle East have become an increasingly important source of foreign exchange for all countries in the region. Although remittance levels were generally maintained in 1985/86, in part because many workers returned home with accumulated savings, anticipated future declines in remittances darken the balance of payments outlook. The region's external debt, increasingly on commercial terms, continued to rise in 1985/86, as larger loan disbursements helped offset trade deficits. Debt service ratios in South Asian countries have grown more slowly than for many other developing countries, in part because the region's economies are not heavily dependent on trade. However, concern over ability to repay foreign debt had a growing impact on economic policy during 1985/86, with increasing emphasis placed on domestic resource mobilization, import substitution, and export expansion.

#### *Steady Growth Forecast for 1986/87*

Most of the South Asian economies are forecast to maintain steady growth in 1986/87, assuming that near-normal 1986 monsoon rainfall allows further growth in farm output. Recent industrial and trade policy initiatives are expected to contribute to another increase in the rate of growth of industrial production and real GDP in India. Growth in Pakistan is likely to slow somewhat because of the large gains in farm production achieved in 1985/86, but further solid gains in the industrial sector are forecast to support real GDP growth of about 6.8 percent. Steady gains in food grain production, coupled with a modest recovery in the garment and other industrial sectors, are expected to lead to slightly stronger growth in Bangladesh. However, setbacks are likely in Sri Lanka because of a poor 1986 rice crop and the continued disruptive effects of civil unrest, and in Nepal because of reduced food grain harvests.

Improved food supplies and efforts to restrain growth in budget deficits and the money supply are forecast to hold down

inflation in most countries in the region in 1986/87. However, stronger inflation is likely in Sri Lanka and Nepal because of slowed growth in food production, and in Pakistan because of excess liquidity created by rapid expansion of domestic bank credit. Moreover, there is likely to be considerable inflationary pressure in all of the region's economies during the year because of subsidy reductions and excess monetary growth in recent years, and these pressures could have a significant impact on food grain and edible oil import needs in the event of a significant production shortfall.

The balance of payments of all of the region's economies is expected to benefit from low world petroleum prices in 1986/87. Smaller petroleum import bills will contribute significantly to narrower trade deficits even though weak world demand and commodity prices are likely to continue to inhibit export performance. Developments on the capital account, however, are forecast to be less favorable. Foreign remittances are likely to decline because of reduced employment opportunities in the Middle East, and Bangladesh, India, and Sri Lanka will have substantially larger debt service payments. Sluggish export performance, coupled with the outlook for further adverse developments in the capital account over the next several years, will continue to add urgency to export promotion and import substitution efforts.

#### *Region's 5-Year Economic Outlook Weaker*

Most of the region's economies are not expected to sustain their recent performance over the next 5 years. Key factors in the outlook include difficulty in achieving development investment targets because of inadequate mobilization of domestic resources through savings and taxation, and inability to achieve growth in exports sufficient to meet rising foreign exchange needs.

Only India is projected to sustain the above-trend growth of 4.5–5.0 percent achieved in recent years, primarily because of its broad industrial export base and excellent domestic savings and investment performance. Annual growth of 6 percent is projected in Pakistan, where weak domestic savings and investment are projected to hold growth below the recent trend unless efforts



to expand exports, including farm commodities, are highly successful. Bangladesh's farm sector is projected to register steady growth, but severe financial constraints inhibit the outlook for industrial and export expansion. Protracted civil unrest has hampered resource mobilization and investment in Sri Lanka, and is projected to constrain real economic growth over the next 5 years, despite the outlook for steady growth in the farm sector.

Economic and policy developments during the next 5 years are not expected to contribute to any substantial growth in South Asia as a market for farm commodities. Countries in the region will continue to import the food staples necessary to maintain stable domestic consumer prices. However, policies and investments will also continue to focus on substituting domestic production for food imports to conserve scarce foreign exchange for imports of development goods. Recent domestic and trade liberalization policies have been directed at stimulating industrial growth, efficiency, and export competitiveness. It is unlikely that these measures will be extended to farm commodities because of the farm sector's dominant role in production, employment, and income in the region, and unwillingness to expose producers and consumers to the vagaries of world markets.

## Bangladesh

### *Farm Sector Gains Drive Economy*

Bolstered by large rice and jute crops and modest gains in the industrial sector, real GDP climbed 4.7 percent in 1985/86 (July/June), compared with 3.8 percent the previous year. Record summer rice and jute harvests offset smaller spring and winter food grain crops, and total farm production rose about 5.9 percent, compared with an average of 2.8 percent during 1980/81–1984/85. Growth in industrial production remained close to 3.0 percent as jute and textile manufacturers faced weak demand.

The Government maintained a tight rein on monetary policy in 1985/86 to contain inflation and to help improve external financial balances. Total liquidity expansion was held to about 15 percent, compared with

26 percent the previous year. The inflation rate, steadied by controls on monetary growth and ample commodity supplies, remained at about 11 percent, the same as in 1984/85. Inflationary pressures created by rapid growth in liquidity during 1983–85 were offset by the large food grain harvest, which led to a small decline in real prices of rice and wheat. Real jute prices collapsed to less than one-third of the previous year's level.

### *Balance of Payments Improves*

Bangladesh's balance of payments position improved in 1985/86. Imports fell for the first time in a decade, primarily because of reduced

Table 1—Economic indicators for Bangladesh

|                                       | FY79–FY84<br>average | FY85   | FY86<br>est. | FY87<br>proj. |
|---------------------------------------|----------------------|--------|--------------|---------------|
| Gross domestic product (billion Taka) |                      |        |              |               |
| Current prices                        | 237.8                | 376.0  | 432.0        | 503.0         |
| 1972/73 prices                        | 66.2                 | 76.6   | 80.2         | 84.2          |
| (% change)                            | (3.5)                | (3.8)  | (4.7)        | (5.0)         |
| Indices of production                 |                      |        |              |               |
| Agriculture:<br>(1976–78=100)         | 112.2                | 119.0  | 126.0        | 131.0         |
| (% change)                            | (2.6)                | (0.0)  | (5.9)        | (4.0)         |
| Industry:<br>(1973/74=100)            | 140.5                | 150.7  | 155.2        | 159.9         |
| (% change)                            | (2.9)                | (3.1)  | (3.0)        | (3.0)         |
| Consumer price indices (1973/74=100)  |                      |        |              |               |
| All items                             | 275.0                | 397.0  | 440.0        | 489.0         |
| (% change)                            | (12.5)               | (11.2) | (10.9)       | (11.0)        |
| Food items                            | 268.0                | 388.0  | 435.0        | 479.0         |
| (% change)                            | (12.5)               | (10.9) | (12.2)       | (10.0)        |
| Foreign trade (\$ million)            |                      |        |              |               |
| Exports                               | 695                  | 943    | 953          | 1,039         |
| (% change)                            | (9.5)                | (16.3) | (1.1)        | (9.0)         |
| Imports                               | 2,283                | 2,633  | 2,500        | 2,575         |
| (% change)                            | (11.3)               | (11.9) | (-5.2)       | (3.0)         |
| Trade balance                         | -1,604               | -1,690 | -1,547       | -1,537        |
| For. reserves                         | 319                  | 404    | 362          | 395           |
| Debt service                          | 166                  | 227    | 280          | 324           |
| Exch. rate<br>(Taka/\$)               | 19.30                | 26.00  | 30.00        | 35.00         |
| Population (millions)                 |                      |        |              |               |
|                                       | 89.60                | 98.30  | 100.80       | 103.30        |
| (% change)                            | (2.79)               | (2.50) | (2.50)       | (2.50)        |

Note: Data are for Bangladesh fiscal years.  
FY87 is the year ending June 30, 1987.

SOURCES: Government of Bangladesh, World Bank, International Monetary Fund, ERS estimates.



food grain imports. Lower petroleum prices yielded only minor benefits because most petroleum imports are on concessional terms. Export earnings were up slightly. Although nontraditional exports of garments showed another solid increase, this was mostly offset by a decline in jute export earnings, because of falling world jute prices. Worker remittances rose 5 percent to about \$500 million because many workers returned from the Middle East with accumulated savings. This, coupled with the narrowed trade deficit, lowered the current account deficit 10 percent. Exchange rate policy also contributed to a smaller deficit, with the Government steadily depreciating the taka to improve export competitiveness and discourage imports.

A sharp drop in commercial food grain imports from more than \$200 million in 1984/85 to only \$15 million in 1985/86 was a key source of reduced balance of payments pressures. However, large debt obligations incurred in commercial purchases in recent years boosted the debt service ratio to 25 percent in 1985/86. Disbursements of foreign aid rose 1.8 percent to \$1.29 billion and helped finance the current account deficit.

#### *Stronger Growth Seen in 1986/87*

Bangladesh's GDP is forecast to grow at close to 5 percent in 1986/87, with continued tight monetary and fiscal policies helping to control inflation and maintain a minimum level of reserves. Food grain production, the industrial sector, and exports are forecast to show solid growth. Food grain production is projected to grow about 4 percent in 1986/87, assuming average monsoon rainfall and further diversification of production to the winter season where weather is less disruptive.

Growth in export earnings is forecast at 9 percent, aided by further gains in nontraditional exports of garments--the United States and the EC increased Bangladesh's access to their garment markets in 1986--and slightly improved prices for tea and jute. However, worker remittances, a key source of foreign exchange, may fall slightly because of more limited employment opportunities in the Middle East, and foreign aid pledges for 1986/87 indicate no growth in aid availabilities. On balance, a slightly

improved foreign exchange position is likely to allow import growth of about 3 percent.

#### *Financial Constraints Impede 5-Year Growth Prospects*

Tight monetary and fiscal policies are expected during the next 5 years to control inflation, maintain a minimum level of foreign exchange reserves, and align government expenditures with limited available resources. Unless food grain production, foreign remittances, exports, and foreign assistance are stronger than now expected, GDP growth will probably be constrained to no more than 4.5 percent, slightly above the recent trend but below the long-term average.

Bangladesh will continue to face a chronic balance of payments shortfall over the next 5 years that will constrain commercial imports of development goods and food. Exports of raw jute and jute products, which face uncertain prospects, account for close to 60 percent of foreign exchange earnings. Although most foreign capital is received on concessional terms, the debt service ratio has climbed rapidly in recent years, in part because of larger commercial food grain purchases, and is likely to remain near 25 percent during the next 5 years. Donor encouragement and government acceptance of policies to achieve food grain self-sufficiency and reduce the trade deficit are likely. The recent need to resort to commercial food grain purchases to meet food security needs, thus disrupting imports of development goods, has reinforced the urgency of the food grain self-reliance issue.

#### *India*

#### *Economy Registers Stronger Growth in 1985/86*

India's real GDP grew about 4.8 percent in 1985/86 (April/March), up from 3.6 percent in 1984/85, because of stronger performance in both the farm and industrial sectors. Farm output recovered modestly from a drought-induced setback in 1984/85, based on record or near-record harvests of wheat, rice, and cotton. However, total farm production remained below the record-shattering 1983/84



outturn because of significant declines in coarse grain and oilseed harvests resulting from dry weather in large areas of western and southern India. Farm output continued to be characterized by what policymakers view as a significant structural imbalance that resulted in continued large surpluses of wheat and rice and inadequate production of pulses, sugarcane and, particularly, oilseeds.

The growth rate of industrial production accelerated for the fourth consecutive year, reaching about 7 percent in 1985/86. Solid gains were achieved in most key sectors, including textiles, steel, cement, coal, power, and transportation. Although annual growth in industrial output remained below the 8-percent target, prospects for industry continued to brighten because of strengthening domestic demand, significantly improved performance in the coal, power, and transport sectors, and the stimulative effects of more liberal policies towards industrial licensing and imports of industrial raw materials and technology.

Inflation, as measured by wholesale prices, slowed for the third consecutive year and reached 5.6 percent in 1985/86. Stable energy costs, abundant supplies of most food staples, and policies that constrained growth in the money supply despite a widening budget deficit, contributed to price stability. Adjustments in administered prices of such items as coal, rail transport, and imported edible oils, as well as higher market prices for rice and some other food items accounted for the bulk of the price rise. Consumer price inflation of about 6.5 percent in 1985/86 was unchanged from 1984/85. Despite continued success in maintaining price stability, always a key policy objective, expansion of domestic bank credit to help cover rising deficits in the government budget remained a growing potential source of inflationary pressure.

### *Wider Trade Deficit Threatens Liberalization Measures*

India's trade deficit widened in 1985/86 as export performance remained sluggish and imports rose sharply. Export earnings continued to be hampered by weak world demand and commodity prices, a relatively strong real effective exchange rate for the rupee, and lack of competitiveness of many

Table 2--Economic indicators for India

|                                      | FY79-FY84<br>average | FY85   | FY86<br>est. | FY87<br>proj. |
|--------------------------------------|----------------------|--------|--------------|---------------|
| Gross domestic product (Rs. billion) |                      |        |              |               |
| Current prices                       | 1,242                | 1,894  | 2,125        | 2,310         |
| 1970/71 prices                       | 525.0                | 614.7  | 644.2        | 679.6         |
| (% change)                           | (4.1)                | (3.6)  | (4.8)        | (5.5)         |
| Indices of production                |                      |        |              |               |
| Agriculture:<br>(1968-70=100)        | 137.8                | 155.0  | 159.7        | 166.1         |
| (% change)                           | (3.4)                | (-.8)  | (3.0)        | (4.0)         |
| Industry:<br>(1970=100)              | 162.8                | 193.9  | 208.4        | 225.1         |
| (% change)                           | (4.6)                | (5.8)  | (7.5)        | (8.0)         |
| Consumer price indices (1960=100)    |                      |        |              |               |
| All items                            | 429.3                | 582.0  | 620.0        | 657.0         |
| (% change)                           | (10.6)               | (6.4)  | (6.5)        | (6.0)         |
| Food items                           | 450.7                | 607.0  | 634.0        | 659.4         |
| (% change)                           | (10.9)               | (4.5)  | (4.5)        | (4.0)         |
| Foreign trade (\$ million) 1/        |                      |        |              |               |
| Exports                              | 8,052                | 8,931  | 9,400        | 9,850         |
| (% change)                           | (4.4)                | (3.0)  | (5.3)        | (4.8)         |
| Imports                              | 13,474               | 13,398 | 15,900       | 14,700        |
| (% change)                           | (8.6)                | (-6.7) | (18.7)       | (-7.5)        |
| Trade balance                        | -5,422               | -4,467 | -6,500       | -4,850        |
| For. reserves                        | 6,052                | 6,110  | 6,410        | 6,600         |
| Debt service                         | 1,446                | 2,366  | 2,600        | 2,900         |
| Exch. rate<br>(Rs./\$)               | 8.84                 | 11.89  | 12.24        | 13.00         |
| Population (millions)                |                      |        |              |               |
|                                      | 708.30               | 749.56 | 765.30       | 781.37        |
| (% change)                           | (2.44)               | (2.22) | (2.10)       | (2.10)        |

1/ Trade data exclude imports and exports of petroleum under temporary swap arrangements.

Note: Data are for Indian fiscal years. FY87 is year ending March 31, 1987.

SOURCES: Government of India, World Bank, International Monetary Fund, ERS estimates.

goods-producing industries. Growth in the import bill was fueled by strengthened domestic demand for petroleum, capital goods and machinery, iron, steel, and nonferrous metals, as well as more liberal policies toward imports of industrial raw materials and technology. Despite the larger trade deficit, there was a balance of payments surplus of about \$300 million because of a larger inflow of nonresident deposits in Indian banks in response to government incentives, a sustained flow of overseas worker remittances, and increased disbursements of foreign commercial borrowings.



The fragile balance of payments situation remained a priority area of concern among policymakers during 1985/86. While recent measures to liberalize imports and delicense domestic industry are designed to eventually make Indian industry more competitive in world markets, the short-term effect has been a surge in imports that may be unsustainable if exports don't respond.

### *Economic Policy Debate Intensifies*

During 1985/86, the second year of India's 7th Five Year Plan, there was an intensified public debate over economic policy reforms, as well as announcement of further measures aimed at enhancing the growth and competitiveness of Indian industry. A number of major government-commissioned studies were issued during the year, recommending further reforms in such areas as foreign trade, taxation, and monetary policy. Trade policy recommendations focused on a shift from physical controls to a regime where only food and nonessential consumer goods remain subject to state controls, while all industrial capital goods and raw materials are freely traded subject to tariffs. Key policy adjustments during the year included further delicensing of industrial capacity, a long-term fiscal policy that will stabilize the domestic and trade policy environment for industry for 3 years, initiation of reforms in excise taxation, and implementation of personal and industrial income tax reforms that have successfully boosted tax compliance and revenues by lowering tax rates.

Further policy changes are viewed as critical if the 7th plan targets of 3.7 percent annual growth in agriculture, 8 percent growth in industry, and 5.0–5.5 percent growth in real GDP are to be achieved. Success in mobilizing domestic resources will be a principal determinant of whether targets are met. Major elements of the resource mobilization strategy include a more circumscribed role for, and increased profitability of, public sector enterprises, reduced outlays on subsidies, stimulation of private domestic and foreign investment, increased attention to export development, and successful import substitution in fertilizer, food grains, and oilseeds.

Measures to achieve the ambitious target for growth in the farm sector include major

initiatives to expand production in rainfed zones and in the rice bowl of eastern India. The plan calls for a 34-percent real increase in irrigation investment, a doubling of agricultural credit, decentralization of research by agro-climatic zone, and expansion of a recently introduced crop insurance scheme. Gains in rainfed producing zones and eastern India are expected to contribute significantly to achievement of a one-third reduction in the incidence of poverty during the plan. Emerging areas of farm policy debate include reduction of burgeoning outlays on food grain and fertilizer subsidies, and adjustments of agricultural price policy to strengthen producer incentives for oilseeds and pulses and reduce the food grain surplus.

### *Stronger Growth Projected in 1986/87*

India's economy is expected to continue to grow at above the long-term rate of 3.6 percent in 1986/87. Real GDP growth is projected at 5.5 percent, assuming that a normal 1986 monsoon contributes to stronger gains in farm output, and that industrial sector growth will continue to accelerate in response to stimulative policies and strengthened effective demand. Monsoon performance so far is supportive of these projections and it is possible that average rainfall for the remainder of the monsoon, together with the continually improving policy environment for industrial expansion and adequate foreign exchange availabilities, will boost real growth above current projections. Large food grain stocks and monetary restraint are likely to ensure relative price stability in 1986/87, with the likelihood of a decline in real food prices improving prospects for effective demand and growth in nonfarm sectors.

India's balance of payments is expected to benefit substantially from lower world petroleum prices in 1986/87, as well as from reduced fertilizer import demand and continued low world edible oil prices. These developments are forecast to more than offset larger imports of industrial goods, as well as continued sluggish export growth, and lead to a substantial decline in the trade deficit. However, developments in other areas of the balance of payments are expected to be less favorable, with debt service obligations scheduled to rise 12 percent and a decline in worker remittances likely. Although the 1986/87 outlook calls for another balance of



payments surplus, policymakers can be expected to focus on less optimistic medium-term prospects that include further growth in imports in response to import liberalization measures, stagnating remittances, and a sharp increase in repayment obligations to the IMF and commercial lenders.

### *Above-Trend Growth Projected for Next 5 Years*

The Indian economy is expected to sustain the above-trend growth achieved during 1980-1985, with real GDP projected to grow by 4.5-5.0 percent annually during 1987-1991. Improved performance is projected in nonfarm sectors in response to the recent easing of trade and licensing restrictions and measures to stimulate private domestic and foreign investment. Continued strong growth is also expected in the farm sector, although growth will be slower than the robust 6.2-percent rate achieved during 1980-1985, as policymakers seek to diversify production to achieve more balanced sectoral growth. Current economic growth projections are below government targets of 5.0-5.5 percent because large budget and balance of payments deficits and continued infrastructural bottlenecks (particularly power) will make it difficult to achieve real investment and output targets.

Government fiscal and monetary policies are expected to continue to be successful in maintaining moderate rates of inflation of 5 to 8 percent. Key factors are the outlook for stable or declining real prices for food grains and imported petroleum, and the expectation of continued conservative monetary policy. However, there may be substantial inflationary pressure in the Indian economy during this period of sustained above-trend growth and pressure on government financial resources.

India's balance of payments situation is projected to be very tight over the next 5 years with the trade deficit heavily pressured by import liberalization measures. Other key factors will be slowed growth in domestic petroleum production, rising foreign capital needs (the domestic savings rate already stands at 23 percent of GDP), and increasing commercial debt obligations. These developments are expected to afford high priority to economically justified

self-sufficiency and import substitution programs, including those in petroleum, fertilizers, and edible oils (the three largest import items), as well as increased promotion of exports, during the next 5 years. Export promotion efforts will focus primarily on industrial goods and manufactures, as well as the broad array of high-valued horticultural products that traditionally account for about 30 percent of export earnings.

## **Nepal**

### *Economy Recovers in 1985/86*

Nepal's economy depends heavily on rainfed traditional agriculture and fluctuates widely from year to year. In 1985/86 (July/June), agricultural output recovered to a normal level from a downswing a year earlier. As a result, GDP increased by 4.2 percent. Inflation rose to about 13 percent because of a devaluation of the Nepali rupee and increases in some administered prices.

Nepal's current account and trade balances have generally been in deficit. However, the current account deficit has usually been matched by inflows of grants and concessionary loans. In 1985/86, the trade and current account balances were deteriorating, and the Government decided on November 30, 1985, to devalue the rupee by 15 percent. Before the devaluation, exports had been stagnant, while imports were rising. In spite of the devaluation, the trade deficit widened to about \$350 million, and the current account deficit to about \$200 million. External public debt rose to about one-fourth of GDP, but the debt service ratio remained at 5 percent.

### *Growth Likely To Remain Sluggish*

Besides its dependence on rainfed agriculture, Nepal's economy is constrained by several other factors that mitigate against rapid improvement. These include low levels of education and international technical interchange, which result in slow absorption of new technologies and foreign assistance; limited infrastructure, which hampers productivity growth; and a traditionally very small private sector, consisting mostly of agricultural marketing and processing, which has limited the development of other



employment-generating industries. In addition, the long, open border with India often constrains Nepal to policies (e.g., for commodity prices) generally consistent with those of its huge southern neighbor. Inflation rates were quite similar in the two countries over the past 5 years.

In 1986/87, Nepal's economy is projected to show little or no growth because of serious weather damage to the paddy crop. Inflation may remain high if adequate grain cannot be procured in time from abroad. The balance of payments may also be affected by the food grain situation, although most of any food imports are likely to be on concessional terms. The longer-term outlook, which is predicated on average weather, is for growth at about 3.5 percent per year, and a more normal inflation rate of about 6 percent.

## Pakistan

### *Economy Continues Strong in 1985/86*

The economy of Pakistan grew a healthy 7.5 percent during 1985/86 (July/June), much stronger than expected. Farm sector output expanded close to 7 percent, with record cotton, wheat, and pulse crops more than offsetting smaller harvests of rice and sugarcane. Industrial output increased 8.5 percent, about the same as 1984/85. Solid growth was registered in cement, jute goods, paper, and light commercial vehicles. Within the important textile sector, cotton yarn production increased by 9.7 percent, but that of cotton fabrics declined by 5 percent. Among factors handicapping the textile industry were international quotas, overcapacity, obsolete plants and, in 1985/86, a pricing policy that has resulted in higher prices of raw cotton in the domestic market than in the international market.

Inflation, as measured by consumer prices, slowed to about 5.5 percent in 1985/86, helped by lower or stable prices for all major farm commodities. The Government maintained tight credit policies to control inflation. Growth in domestic liquidity was about 10 percent, compared with average annual growth of over 15 percent during the previous 5 years.

Table 3--Economic indicators for Pakistan

|                                      | FY79-FY84<br>average | FY85   | FY86<br>est. | FY87<br>proj. |
|--------------------------------------|----------------------|--------|--------------|---------------|
| Gross domestic product (Rs. billion) |                      |        |              |               |
| Current prices                       | 273.5                | 428.2  | 492.2        | 552.8         |
| 1959/60 prices                       | 56.1                 | 69.1   | 74.3         | 79.3          |
| (% change)                           | (5.6)                | (8.4)  | (7.5)        | (6.8)         |
| Index of agricultural production     |                      |        |              |               |
| (1959/60=100)                        | 115                  | 128    | 133          | 144           |
| (% change)                           | (2.4)                | (6.7)  | (3.9)        | (8.3)         |
| Consumer price index (1975/76=100)   |                      |        |              |               |
| All items                            | 164.8                | 213.9  | 225.7        | 243.8         |
| (% change)                           | (8.8)                | (7.4)  | (5.5)        | (8.0)         |
| Foreign trade (\$ million)           |                      |        |              |               |
| Exports                              | 2,403                | 2,475  | 2,900        | 3,161         |
| (% change)                           | (14.7)               | (-7.2) | (17.2)       | (9.0)         |
| Imports                              | 5,270                | 5,937  | 5,812        | 6,039         |
| (% change)                           | (14.7)               | (-1.1) | (-2.1)       | (3.9)         |
| Trade balance                        | -2,867               | -3,462 | -2,912       | -2,878        |
| For. reserves                        | 1,107                | 672    | 1,050        | 1,050         |
| Debt service                         | 791                  | 1,203  | 1,423        | 1,494         |
| Exch. rate<br>(Rs./\$)               | 11.08                | 15.16  | 16.10        | 17.00         |
| Population (millions)                |                      |        |              |               |
|                                      | 85.3                 | 94.7   | 97.7         | 100.7         |
| (% change)                           | (3.1)                | (3.1)  | (3.1)        | (3.1)         |

NOTE: Data are for Pakistan fiscal years. FY87 is the year ending June 30, 1987.

SOURCES: Government of Pakistan, World Bank, International Monetary Fund, ERS estimates.

### *Balance of Payments Improves*

Following a further deterioration in 1984/85, largely because of disappointing exports, Pakistan's balance of payments rebounded sharply in 1985/86. Export earnings rose about 17 percent as receipts from raw cotton, rice, and garment exports all showed large gains, despite very soft commodity prices in international markets. The import bill fell about 2 percent because of sharply lower prices for petroleum products, edible oils, and tea. A smaller trade deficit, coupled with a 5-percent rise in worker remittances to about \$2.57 billion, reduced the current account deficit 35 percent to \$1.1 billion. A modest accumulation of reserves to about \$1 billion took place after 2 successive years of reserve drawdown.



Exchange rate policy contributed to improved trade performance during 1985/86 as the Government depreciated the still-overvalued Pakistani rupee more than 10 percent against the dollar to enhance export competitiveness. Most export compensatory rebates, which were part of an export promotion effort initiated in 1984/85, were discontinued because of budgetary pressures, widespread abuses, and efforts to rely more on exchange rate policy to boost exports.

#### *Continued Strong Growth Forecast for 1986/87*

Pakistan's real GDP is forecast to expand about 6.8 percent in 1986/87, with 5.9 percent growth in agricultural production and 8.4 percent growth in industrial output. Agricultural growth forecasts are based on the outlook for significant recovery in harvests of rice and sugarcane, and sustained high production of cotton and wheat. Continued strong gains in industrial output are expected, particularly textiles, petroleum, natural gas, and cement.

The balance of payments outlook for 1986/87 is brightened by the recent sharp fall in petroleum prices. Imports are projected to increase only about 4 percent while exports rise 9 percent, leading to further improvement in the trade deficit. Although a 5-percent decrease is forecast in worker remittances because of reduced employment in the Middle East, the current account deficit is forecast to decline about 20 percent to \$900 million in 1986/87. However, a key uncertainty in the short-term outlook is whether exchange rate and export promotion policies will continue to be successful in boosting earnings from major export items, including raw cotton, cotton yarns, textiles, and rice.

#### *Strong 5-Year Outlook for Economy*

Pakistan's real GDP growth is projected at 6.0 percent during the next 5 years, only a small retreat from recent trends. However, domestic savings and investment performance have been poor in recent years, and achievement of the projected growth rate will depend heavily on success in stimulating investment and growth in the private sector and, in general, more successful domestic resource mobilization. Given the likelihood of

stagnant or moderately declining aid flows, additional resources will have to be generated by more efficient use of capital, reduced subsidies on wheat, edible oils, fertilizers, and natural gas, and from higher taxes, including the initiation of an agricultural income tax. Because Pakistan's terms of trade are not expected to improve, and worker remittances (a key source of foreign exchange) are likely to slow or fall, economic performance will also depend heavily on achieving an export growth rate considerably higher than that for imports.

Balance of payments deficits will probably continue to affect economic performance over the next 5 years. Increasing emphasis will be placed on achieving stronger growth in export earnings, as well as on curbing growth in imports through import substitution. The farm, textile, and energy sectors will be the key focus of these efforts. Further depreciation of the Pakistani rupee against the dollar is likely, although the Government will seek to balance the competitiveness of exports with the affordability of key imports. Even with success in slowing imports and boosting exports, the debt service ratio is projected to rise from the current 17 percent to 20-25 percent by the early 1990's.

### **Sri Lanka**

#### *Farm Sector Buys Economy*

Sri Lanka's economy grew by 5 percent in 1985 (January/December), the same as in 1984, propelled by a 9-percent increase in agricultural output. Manufacturing output increased by only 5 percent, compared with 12 percent in 1984, partly because of civil unrest. Growth in the services sector, which accounts for nearly half of economic activity, fell to about 4 percent in 1985, also partly because of the effects of civil unrest. Consumer prices were steady and wholesale prices dropped an average of 15 percent.

After improving in 1984, Sri Lanka's current account and trade deficits expanded to levels typical in the 1980's. The current account deficit was about \$560 million, and the trade deficit about \$660 million. The Sri Lankan rupee deteriorated by 7 percent



Table 4--Economic indicators for Sri Lanka

|                                      | FY79-FY83<br>average | FY84   | FY85<br>est. | FY86<br>for. |
|--------------------------------------|----------------------|--------|--------------|--------------|
| Gross domestic product (Rs. billion) |                      |        |              |              |
| Current prices                       | 80.0                 | 140.0  | 149.4        | 171.1        |
| 1970 prices                          | 20.7                 | 24.0   | 25.2         | 26.3         |
| (% change)                           | (5.4)                | (5.1)  | (5.0)        | (4.5)        |
| Index of agricultural production     |                      |        |              |              |
| (1968=100)                           | 142.4                | 158.0  | 171.7        | 163.2        |
| (% change)                           | (4.3)                | (1.9)  | (8.7)        | (-5.0)       |
| Consumer price indices (1978=100)    |                      |        |              |              |
| All items                            | 161.2                | 242.9  | 246.4        | 271.0        |
| (% change)                           | (16.5)               | (16.7) | (1.4)        | (10.0)       |
| Food items                           | 173.4                | 251.8  | 252.0        | 282.2        |
| (% change)                           | (9.9)                | (18.1) | (.1)         | (12.0)       |
| Foreign trade (\$ million)           |                      |        |              |              |
| Exports                              | 1,038                | 1,464  | 1,304        | 1,297        |
| (% change)                           | (1.1)                | (37.6) | (-10.9)      | (-.5)        |
| Imports                              | 1,673                | 1,699  | 1,960        | 2,080        |
| (% change)                           | (5.5)                | (-1.6) | (15.4)       | (6.1)        |
| Trade balance                        | -635                 | -235   | -656         | -783         |
| For. reserves                        | 348                  | 511    | 451          | 354          |
| Debt service                         | 257                  | 317    | 368          | 485          |
| Exch. rate<br>(Rs./\$)               | 19.14                | 25.44  | 27.16        | 28.00        |
| Population (millions)                |                      |        |              |              |
|                                      | 14.84                | 15.65  | 15.92        | 16.21        |
| (% change)                           | (1.79)               | (1.82) | (1.73)       | (1.82)       |

NOTE: Data are for Sri Lankan fiscal years.  
FY86 is the year ending December 31, 1986.

SOURCES: Government of Sri Lanka, World Bank, International Monetary Fund, ERS estimates.

against the U.S. dollar in 1985, but export earnings dropped 9 percent as tea and rubber earnings fell due to lower world prices. However, earnings from coconut products increased sharply on higher volume. Imports rose about 15 percent, with increases in rice, wheat, and sugar.

### *Rising Debt Threatens Liberalization Measures*

Since the late 1970's, Sri Lanka has undertaken more rapid liberalization of foreign trade and investment than any other South Asian country. The objectives have been to stimulate growth and exports by improving supplies of raw materials, by exposing industry to competition, and by stimulating private foreign investment. More export-based policies have been necessary

because Sri Lanka's small economy offers very limited potential for efficient import substitution in key sectors such as petroleum, wheat, and industrial equipment and technology.

Results have been mixed. Exports of nontraditional items, primarily textiles and light manufactures, have grown rapidly from a small base, and economic growth has generally been stronger. On the other hand, sluggish and variable exports of tea, coffee, and rubber have prevented sufficient growth in total exports. As a result, the trade deficit has widened and debt service obligations have grown.

The outlook is for a very tight balance of payments situation over the next 5 years, with the need to prevent further growth in foreign commercial debt, possibly leading to some retreat from trade liberalization. High priority will likely be given to viable import substitution programs, particularly those for rice and other food crops, to reduce imports of rice and wheat.

### *Steady Growth Projected*

Sri Lanka's real GDP growth is forecast to slow to 4.5 percent in 1986, due to smaller harvests of major agricultural commodities, primarily rice and tea. Ethnic strife may continue to disrupt economic performance and private investment in some sectors. Little change is expected in the balance of payments situation, but the accumulating deficits and stagnant exports could lead to an unprecedented debt service ratio of almost 30 percent. Inflation is likely to resume and reach 5 to 10 percent as the effects of budget deficits and the smaller rice crop are felt.

Real GDP growth is projected to average 5 percent during 1987-1991, consistent with recent performance but below the 6-percent growth rate achieved between 1977 and 1982. Growth in the farm sector, which accounts for about 30 percent of GDP, is expected to slow because recent rapid growth in rice production is not likely to be sustained. The country is approaching rice self-sufficiency, and development efforts have begun to shift to other foods and export crops (tea, coconut, and rubber), where rapid gains will be difficult to achieve. Other sectors of the economy,

principally light manufacturing, are expected to respond to government trade and investment policies, but dependence on export market growth may impede performance. Additional constraints to growth are rising debt service obligations and ongoing civil unrest, which has disrupted growth in some sectors, slowed inflows of private foreign investment, and diverted development resources to civil defense activities.

Inflation is expected to be 10 percent during 1987-1991, substantially below the rates of the recent past. Reasons include low petroleum prices and more conservative monetary and fiscal policies. Also, recent inflation has been partly driven by subsidy reductions that have already worked their way through the economy.

## FOOD GRAIN SECTOR DEVELOPMENTS AND OUTLOOK

### Overview

#### *Larger Harvests Reduce Cereal Imports in 1985/86*

South Asia produced record crops of rice and wheat in 1985/86, with regional rice output expanding more than 3 percent, and wheat production up about 8 percent. A favorable 1985 monsoon led to record rice harvests in Bangladesh, India, Nepal, and Sri Lanka, more than offsetting a

weather-induced decline in Pakistan. Indian and Pakistani wheat harvests rebounded to records in 1986 because of better winter rainfall, while wheat output dropped in Bangladesh, in part because of weakening producer incentives. Regional coarse grain production fell nearly 4 percent below 1984/85 and 11 percent below the 1983/84 record because of a second consecutive year of dry weather in key producing areas of India.

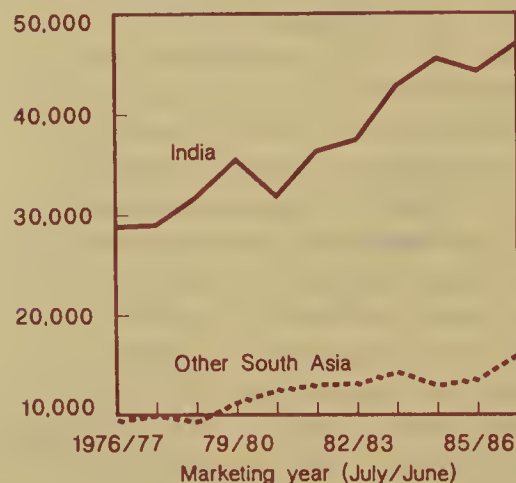
South Asian wheat imports fell about 5 percent to 3.5 million tons in 1985/86 (July/June), the fourth consecutive decline. Imports by Pakistan increased sharply to nearly 1.6 million tons to meet distribution and stock building needs following poor harvests in 1984 and 1985, but imports by Bangladesh and Sri Lanka dropped because of improved domestic rice supplies and ample stocks. India continued to hold a large surplus of wheat, with increases in subsidized distribution and exports leading to only a small decline in government stocks by July 1986. Indian wheat exports during 1985/86 are estimated at 600,000 tons. Competition for wheat sales in the region remained keen, but the U.S. market share rose from 1.5 million tons (41 percent) in 1984/85 to about 1.9 million (55 percent) in 1985/86, with a large increase in concessional and credit sales to Pakistan more than offsetting smaller sales elsewhere in the region.

The region's rice imports fell 60 percent to about 460,000 tons in 1985 as India terminated imports and Bangladesh's demand dropped because of improved domestic

### Wheat

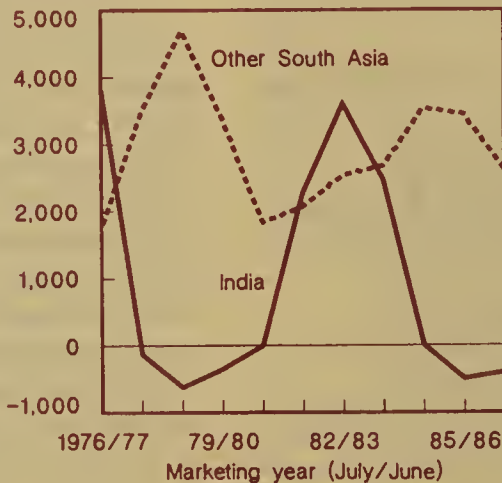
#### Production

Thousand tons



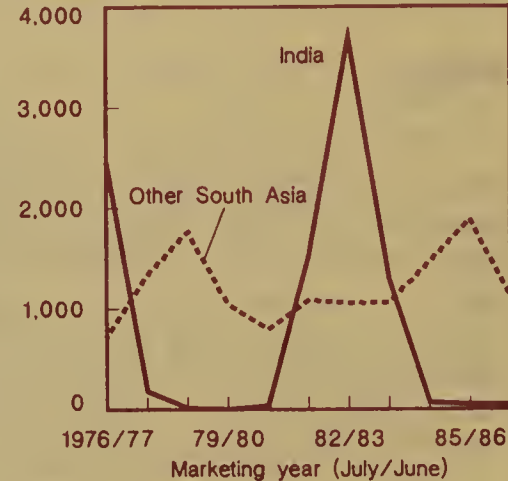
#### Net Imports

Thousand tons



#### U.S. Exports

Thousand tons





supplies. Rice imports during 1986 are forecast to remain near the 1985 level, with a further decline in Bangladesh's requirements offset by larger purchases by Sri Lanka to compensate for a poor 1986 rice crop. Asian exporters continued to supply the bulk of the region's rice imports in 1985 and 1986, with annual U.S. sales limited to about 80,000 tons of concessional supplies to Bangladesh. South Asian rice exports fell about 5 percent to 1.2 million tons in 1985, with price competition constraining Pakistan's exports. Rice exports are also forecast at 1.2 million tons for 1986, although actual sales could be substantially higher if Pakistan sustains the export pace established during the first half of the year.

### *Good Harvests and Smaller Imports Forecast for 1986/87*

Record or near-record cereal harvests are forecast in most of the region in 1986/87, assuming that the quantity and distribution of rainfall from the 1986 monsoon remains near-normal. Total production of rice, which is most dependent on the monsoon, is forecast near the 1985/86 record, with good weather leading to a larger harvest in Bangladesh and a strong recovery in Pakistan. Smaller rice harvests are currently forecast in India, Sri Lanka, and Nepal but continued good weather in the rice bowl of eastern India could lead to a substantially larger Indian harvest. Further growth is projected in wheat production in the region in 1987. Mounting surpluses and weakening internal prices are unlikely to reverse the strong upward trend in wheat production if weather is near-normal. South

Asian coarse grain output is forecast to rise only about 2 percent, with dry weather in western and southern India preventing a stronger recovery in Indian production.

The region's wheat imports are projected to drop nearly 20 percent to about 2.9 million tons in 1986/87 because of a sharp drop in imports by Pakistan resulting from record domestic supplies. However, Bangladesh,

Table 5--Production of cereals in South Asia 1/

| Grain                | 1983/84 | 1984/85 | 1985/86<br>est. | 1986/87<br>for. |
|----------------------|---------|---------|-----------------|-----------------|
| 1,000 tons           |         |         |                 |                 |
| <b>Wheat</b>         |         |         |                 |                 |
| Bangladesh           | 1,210   | 1,469   | 1,210           | 1,500           |
| India                | 45,476  | 44,229  | 47,000          | 47,500          |
| Nepal                | 634     | 534     | 589             | 640             |
| Pakistan             | 10,882  | 11,703  | 13,800          | 14,000          |
| Total                | 58,202  | 57,935  | 62,599          | 63,640          |
| <b>Rice (milled)</b> |         |         |                 |                 |
| Bangladesh           | 14,500  | 14,620  | 15,170          | 15,600          |
| India                | 60,097  | 58,636  | 61,000          | 60,000          |
| Nepal                | 1,838   | 1,804   | 1,867           | 1,590           |
| Pakistan             | 3,339   | 3,315   | 2,960           | 3,400           |
| Sri Lanka            | 1,688   | 1,640   | 1,809           | 1,700           |
| Total                | 81,462  | 80,015  | 82,806          | 82,290          |
| <b>Coarse grains</b> |         |         |                 |                 |
| Bangladesh           | 52      | 52      | 52              | 52              |
| India                | 33,907  | 31,162  | 29,900          | 30,700          |
| Nepal                | 913     | 975     | 1,029           | 990             |
| Pakistan             | 1,646   | 1,627   | 1,646           | 1,685           |
| Sri Lanka            | 16      | 16      | 16              | 16              |
| Total                | 36,534  | 33,832  | 32,643          | 33,443          |

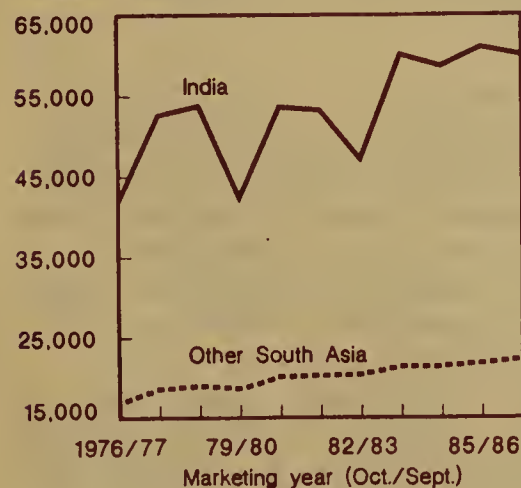
1/ Production reported by local July/June crop years, except Sri Lanka where production is for January-December of the first year.

SOURCES: Official government data in each country, USDA estimates.

## Rice

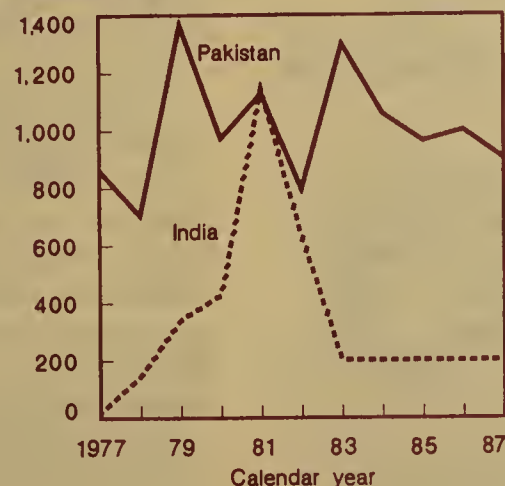
### Production

Thousand tons



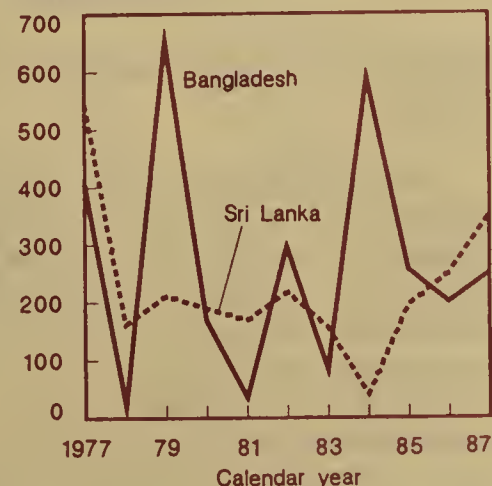
### Exports

Thousand tons



### Imports

Thousand tons





Nepal, and Sri Lanka are forecast to increase their wheat imports to ensure domestic price stability and adequate stocks. Reduced sales to Pakistan are expected to drop U.S. wheat marketings in the region more than 35 percent to about 1.2 million tons (a 40-percent market share) in 1986/87. However, increases in concessional and credit program levels may lead to a higher U.S. market share in Bangladesh and Sri Lanka.

#### *Five-Year Outlook Indicates Further Drop in Cereal Imports*

South Asia's annual average net imports of wheat are projected to fall to 2.4 million tons by 1990, down about 30 percent from the 1984-1986 average. Net rice exports are projected to more than double to about 1.4 million tons. Declining world wheat and rice prices are not expected to alter the strongly held food grain self-sufficiency goals of countries in the region. Rich agricultural resource bases and currently low yields offer broad scope for further gains in production. All rice importing countries in the region are projected to reduce their imports, and only the nonproducing country of Sri Lanka is expected to show any growth in wheat import demand. The principal impact of low world cereal prices is likely to be in Pakistan and India, where difficulty in marketing emerging wheat surpluses because of intense competition may boost stocks, weaken prices, and prompt crop diversification efforts. U.S. wheat exports to the region, primarily to Bangladesh and Sri Lanka, may fall to an annual average of 1.2 million tons by 1990, with market share remaining heavily dependent on concessional and credit programs.

#### **Bangladesh**

##### *Record Rice Crop Boosts Food Grain Output in 1985/86*

Bangladesh's 1985/86 food grain harvest is estimated at a record 16.4 million tons, 1.8 percent above 1984/85, with a bumper summer rice crop more than offsetting smaller spring and winter harvests of rice and wheat. Total rice output was up 3.8 percent to a record 15.2 million tons, primarily because favorable weather and good input supplies led to a strong gain in production from the main summer rice

crop. Insect damage and competition with jute for land reduced spring rice production, while weakening producer prices led to a decline in winter rice area. The large summer rice crop contributed to a buildup of farmer-held stocks and reduced plantings of winter rice, which normally directly follows summer rice on the same land. Winter rice yields also fell slightly because of dry winter weather, as well as lower fertilizer utilization stemming from weakening rice prices and a 4-percent increase in fertilizer prices.

During 1985/86, the Government attempted to provide stronger price incentives for rice producers than in recent years. The paddy procurement price was raised twice, 3 percent to 4,555 taka (\$152) per ton during the summer rice season, and another 3 percent to 4,688 taka (\$157) per ton during the winter rice season. However, procurement in price support operations was inadequate to halt the slide of harvest prices for summer rice in many excess producing areas, and price supports during the winter rice season were insufficient to boost plantings.

The 1985/86 wheat crop, harvested in April-May 1986, was a disappointing 1.2 million tons, down 17 percent from the 1984/85 record. Area decreased 14 percent, primarily because the bumper 1985/86 summer rice harvest reduced incentives for farmers to follow rice with wheat as they did a year earlier when floods damaged a large portion of the summer rice crop. The wheat support price was raised 5 percent to 4,554 taka (\$152) per ton in November 1985 but, according to later surveys, was too low to encourage higher area and input use. Yields were also slightly reduced because of lower fertilizer use and unfavorable weather.

##### *Comfortable Domestic Supplies Reduce Food Grain Imports*

The record 1985/86 summer rice crop, coupled with large carryover supplies from record winter food grain harvests in 1984/85, resulted in a relatively comfortable food grain supply situation during most of 1985/86. There was strong downward pressure on food grain prices until March 1986, when the disappointing winter harvests reversed the downward trend. For the year, rice prices averaged close to 2 percent below 1984/85. The Government responded to weakening



Table 6--Wheat and rice imports by Bangladesh by source and type of financing (July/June)

|            | Commercial  |             |             | Concessional |             |             |
|------------|-------------|-------------|-------------|--------------|-------------|-------------|
|            | 1983/<br>84 | 1984/<br>85 | 1985/<br>86 | 1983/<br>84  | 1984/<br>85 | 1985/<br>86 |
|            | 1,000 tons  |             |             |              |             |             |
| Wheat      |             |             |             |              |             |             |
| Australia  | 412         | 204         | --          | 60           | 55          | 50          |
| Canada     | --          | --          | --          | 435          | 144         | 456         |
| EC         | --          | --          | --          | 140          | 130         | 70          |
| France     | --          | --          | --          | --           | 28          | 18          |
| UK         | --          | --          | --          | 3            | 26          | --          |
| USA        | 141         | 513         | 104         | 462          | 373         | 264         |
| W. Germany | --          | --          | --          | --           | 20          | 20          |
| WFP 1/     | --          | --          | --          | 225          | 328         | 222         |
| Other      | --          | --          | --          | --           | 80          | 48          |
| Total      | 553         | 717         | 104         | 1,325        | 1,184       | 1,148       |
| Rice       |             |             |             |              |             |             |
| Australia  | --          | --          | --          | 17           | --          | --          |
| Burma      | 15          | 60          | 10          | --           | --          | --          |
| Japan      | --          | --          | --          | 92           | 33          | 24          |
| Thailand   | --          | 440         | --          | --           | --          | 1           |
| USA        | --          | --          | --          | 56           | 87          | --          |
| Other      | --          | 65          | --          | --           | 5           | 2           |
| Total      | 15          | 565         | 10          | 165          | 125         | 27          |

-- = None or negligible.

1/ World Food Program imports from various donor sources.

SOURCES: Government of Bangladesh, USDA estimates.

producer prices by raising ration prices, and by reducing food grain distribution through open market operations and ration shops by 43 percent to 1.5 million tons, the lowest level since 1979.

Because of adequate stock carryover and reduced distribution, food grain imports dropped from 2.6 million tons in 1984/85 (July/June) to only 1.3 million in 1985/86. Rice imports fell 95 percent and wheat imports dropped 32 percent. Food aid donations were timely and adequate and, as a result, commercial purchases fell to just over 100,000 tons, compared with a record 1.3 million tons in 1984/85. The U.S. share of all food grain imports was about 39 percent, the same as 1984/85. Food grain stocks at the end of June 1986 remained at a relatively comfortable 906,000 tons.

#### *Imports Likely To Rise in 1986/87 Despite Production Gains*

Food grain production in 1986/87 is forecast to rise 4.4 percent to a record 17.2 million tons, assuming the 1986 monsoon continues to provide average rainfall. Rice

production is forecast at a record 15.6 million tons, based on the outlook for a more modest increase in the main summer rice harvest and a rebound in plantings and yields for the spring and winter crops. There has been a strong upward trend in irrigated production of winter rice over the last 10 years and more normal weather, coupled with strengthening domestic rice prices since March 1986, should stimulate a recovery in winter production. Higher rice prices, coupled with sharply lower prices for the competing jute crop, should also contribute to larger spring rice plantings. A recovery is also projected in the 1987 wheat harvest under the assumption of more normal weather, with more supportive price policies and further improvements in input supplies helping to return production to its strong upward trend.

Despite the outlook for further production gains, food grain imports are forecast to rise substantially from the 5-year low of 1985/86. Government distribution of subsidized wheat and rice is likely to be increased because of government efforts to stabilize consumer food grain prices that have now increased sharply since spring 1986. Food grain imports are currently forecast at 2 million tons, including 1.8 million of wheat and 200,000 of rice. Concessional imports are projected at 1.0-1.5 million tons and, given the adverse impact of recently incurred debt from commercial food grain purchases on Bangladesh's weak balance of payments, the actual quantity of food aid donations could be a key determinant of the level of total imports. U.S. sales and donations are currently forecast at 700,000 tons of wheat and 35,000 tons of rice, accounting for a roughly constant market share of 37 percent.

Recent domestic price policy adjustments, coupled with declining world prices, have left Bangladesh with a price regime where domestic rice prices are close to the landed cost of imports, and wheat prices are about 30 percent higher. Additional increases in producer price incentives to stimulate area increases and technology adoption will likely move domestic prices out of alignment with declining world prices, and also require equivalent increases in consumer prices to contain budget subsidy outlays. Economic development and food security objectives are likely to remain the principal considerations in domestic price policy



decisions. While the Government is expected to continue to strengthen producer price incentives, concern over consumer price stability will likely keep most efforts to boost production focused on expansion of irrigation facilities and input supplies.

## India

### *Record Wheat and Rice Harvests in 1985/86*

Indian food grain production recovered from a 4-percent decline in 1984/85 to grow by about 3.2 percent in 1985/86 because of record harvests of rice and wheat. However, coarse grain production fell for the second consecutive year because of dry weather in rainfed zones of western and southern India, holding total food grain production below the record-shattering outturn of 1983/84. Coarse grain production in 1985/86 was about 4 percent below a year earlier and 12 percent below the 1983/84 record. The 1985/86 rice harvest is estimated at a record 61 million tons, with a good 1985 monsoon in eastern and northern India and further gains in input use stimulating a record yield. The 1985/86 wheat crop, harvested during April-May 1986, is estimated at 47 million tons, 6.3 percent above 1984/85 and 3.4 percent above the previous record crop in 1983/84. Good soil moisture at planting time and ample irrigation, water supplies in wheat areas of northern India contributed to increased plantings, another large increase in fertilizer use, and record yields. Pulse production fell about 5 percent to 12.2 million tons, despite strengthening prices and government promotion efforts, because of drought damage to fall harvests and insect losses to spring harvests.

### *Stocks Rise Despite Record Subsidized Sales*

Government stocks of wheat and rice rose to a record of about 29.5 million tons, more than 8 million tons above target, by July 1986, despite measures to reduce government procurement and increase subsidized distribution. Although wheat stocks fell about 1.5 million tons, rice stocks increased about 2 million tons. Wheat procurement in price support operations from the 1986 crop was a record 10.5 million tons despite only a nominal

3.2-percent increase in the procurement price. Record production in surplus areas of northern India continued to depress open-market wheat prices even though the Government attempted to boost open-market demand by easing movement restrictions and stockholding limits on private traders. However, government distribution of wheat jumped nearly 60 percent to a record of about 11 million tons, primarily because of increases in sales to flour millers and heavily subsidized distribution through food-for-work projects and programs aimed at tribal groups in northeastern India.

Procurement of rice from the 1985/86 crop is estimated at about 9.8 million tons, matching the 1984/85 record. Relatively high open-market prices of rice, only a small increase in the procurement price, and the concentration of production gains in rice-deficit areas of eastern India prevented an increase in price support purchases. Open-market rice prices began to strengthen in real terms in 1985/86, following 2 years of decline, because of relatively small stocks held by private traders, the concentration of production gains in traditional deficit areas and, in February 1986, an increase in administered retail prices through government fair-price shops. Distribution of rice increased about 19 percent to 7.5 million tons in 1985/86, as the Government concentrated on reducing surplus wheat stocks.

Surplus stocks continued to create serious storage problems for the Government, despite additions to storage capacity during the year. Storage capacity is estimated at about 19 million tons, indicating that about 8-10 million tons of wheat and rice are stored under tarpaulins during the peak storage (and monsoon) months of July-September. In addition, rising interest costs helped boost the total government outlay on procurement, distribution and storage operations 60 percent to about Rs 18 billion (\$1.47 billion) in 1985/86.

### *Government Attempts To Boost Exports*

Although efforts to dispose of the current wheat surplus continue to focus on subsidized domestic sales, concern over potential storage losses, soaring interest costs, and inability to dispose of the surplus in the domestic market led the Government to give more attention to



Table 7--Summary of government wheat and rice operations in India (July/June)

|              | Pro-<br>cure-<br>ment | Im-<br>ports | Ex-<br>ports | Public<br>dist. | Ending<br>stocks |
|--------------|-----------------------|--------------|--------------|-----------------|------------------|
| Million tons |                       |              |              |                 |                  |
| <b>Wheat</b> |                       |              |              |                 |                  |
| 1981/82      | 7.57                  | 2.26         | —            | 6.88            | 10.15            |
| 1982/83      | 8.38                  | 3.63         | .10          | 8.01            | 13.61            |
| 1983/84      | 9.23                  | 2.50         | .04          | 6.97            | 17.94            |
| 1984/85      | 10.30                 | —            | .15          | 6.93            | 19.50            |
| 1985/86 est. | 10.50                 | —            | .60          | 11.00           | 21.00            |
| 1986/87 for. | 10.00                 | —            | .50          | 12.00           | 16.50            |
| <b>Rice</b>  |                       |              |              |                 |                  |
| 1981/82      | 7.19                  | .07          | .80          | 7.07            | 5.12             |
| 1982/83      | 7.02                  | .70          | .21          | 7.98            | 3.84             |
| 1983/84      | 7.47                  | .16          | —            | 7.26            | 4.59             |
| 1984/85      | 9.82                  | —            | —            | 6.60            | 7.95             |
| 1985/86 est. | 9.80                  | —            | .50          | 7.50            | 10.00            |
| 1986/87 for. | 9.50                  | —            | .20          | 8.00            | 11.00            |
| <b>Total</b> |                       |              |              |                 |                  |
| 1981/82      | 14.76                 | 2.26         | .80          | 13.95           | 15.27            |
| 1982/83      | 15.40                 | 3.70         | .31          | 15.99           | 17.45            |
| 1983/84      | 16.70                 | 3.20         | .04          | 14.23           | 22.53            |
| 1984/85      | 20.12                 | .16          | .15          | 13.53           | 28.98            |
| 1985/86 est. | 20.30                 | —            | .60          | 18.50           | 29.50            |
| 1986/87 for. | 19.50                 | —            | .70          | 20.00           | 27.50            |

— = none or negligible.

Note: Annual supply and use data do not balance because of storage losses and reporting lags.

SOURCES: Government of India, Attache reports, ERS estimates.

exports during 1985/86. Efforts to export surplus wheat were initiated in 1984/85, but yielded little success because domestic support prices (currently \$132 per ton) made Indian wheat uncompetitive in the current world market, and because of quality and handling problems. During 1985/86, the Government announced that it would subsidize exports of 2 million tons of wheat from government stocks and became more active in seeking barter deals. Wheat exports during 1985/86 (July/June) are estimated at 600,000 tons, including about 450,000 tons to the Soviet Union to complete a 500,000-ton deal arranged in 1984, and a 100,000-ton loan to Vietnam. More recently the Government has announced barters and sales totaling about 300,000 tons to Nepal, North Korea, Jordan, and Nicaragua at prices ranging from \$100–125 per ton, and is exploring the possibility of sales to Iran.

With government rice stocks now also above target by about 2 million tons, resumption of large scale exports of coarse varieties of rice, in addition to traditional

exports of basmati rice, are being considered. The Government exported more than 2 million tons of coarse varieties, primarily through barters with the Soviet Union, when rice stocks rose above target during 1980–1982. Although private and government exports of up to 1 million tons have been licensed, no sales have occurred because quality and the current government-established minimum export price (\$325 per ton compared with a support price of \$185) are uncompetitive in the world market. Exports of long-grained, aromatic basmati rice, estimated at 200,000 tons in both 1985 and 1986, also continued to be hampered by poor quality and a high minimum export price of \$613 per ton.

### *Policies Aim at Reducing Surplus*

Price policy adjustments during 1985/86 indicate that efforts to reduce surplus cereal stocks, as well as burgeoning subsidy costs, will focus primarily on slowing increases in support prices, boosting open-market prices to reduce procurement in price support operations, and compensating low-income consumers with targeted consumer subsidies. Support price increases in 1985/86 of only 3.2 percent for wheat and 3.5 percent for rice probably reduced the profitability of their cultivation relative to competing crops that are in short supply, including sugarcane, oilseeds, and pulses. A 10-percent increase in fertilizer prices effective in February 1986 will probably also reduce the relative profitability of wheat and rice, as well as budget outlays on fertilizer subsidies.

Government issue (retail) price adjustments in 1985/86 featured comparatively large increases of 10.5 percent for wheat (to Rs 1,900 per ton) and 6.5 percent for rice (to Rs 2,170 per ton) in prices charged through fair-price shops and a sharp 28-percent increase (to Rs 2,200 per ton) in the price of wheat sold to roller flour mills—both untargeted programs that primarily benefit urban consumers. The price charged for rice and wheat through various programs that are targeted at low-income groups was unchanged at a level (Rs 1,500 per ton) sharply lower than for other programs. In addition, open-market sales of wheat to private traders were terminated. These adjustments, combined with the relaxation of movement and storage restrictions on private traders, may eventually reduce government



procurement by strengthening open-market prices and forcing private traders and millers to obtain supplies in the open market. In addition, the incidence of consumer subsidies will likely shift more towards low-income target groups where it will have a relatively greater impact on effective demand.

Although cereal exports could benefit a tight balance of payments position, they are primarily viewed as a short-term surplus management tool. With many undernourished consumers, the current surplus is seen more as a problem of ineffective demand than overproduction and, over the longer term, policies can be expected to focus on boosting domestic use rather than curbing production or expanding exports.

#### *Small Production Gains and Reduced Stocks Likely in 1986/87*

Food grain production is forecast to rise marginally to a near-record 152 million tons in 1986/87, assuming average rainfall for the remainder of the 1986 monsoon. Current forecasts are well below the government target of 160 million tons because of continued dry weather in parts of western and southern India, and because of government promotion and higher relative prices of competing crops such as oilseeds and sugarcane. In addition, the February 1986 increase in fertilizer prices will have its full impact on 1986/87 crops.

Most of the production gain is forecast to occur in coarse grains, as slightly better weather in key producing areas leads to a modest recovery in production following 2 consecutive dry years. Rice output is forecast to fall to 60 million tons based on smaller plantings and reduced input use in surplus areas of north India, but could be substantially higher if rainfall remains good in eastern zones. Weak relative prices are projected to prevent another large increase in the 1987 wheat harvest, but it is unlikely that the strong upward trend in production will be reversed under normal weather conditions. Relatively high prices and government promotion are projected to lead to higher pulse production if winter rains are normal.

With current production forecasts and a continuation of recent policy initiatives,

government wheat stocks are projected to fall in 1986/87. Wheat procurement is projected to decline because of strengthening demand in the open market, while distribution through targeted programs rises. Wheat exports through loans and barter, including recently announced deals with North Korea and Jordan, are projected at about 500,000 tons, but could be higher. Relatively strong open-market prices are also projected to reduce rice procurement in 1986/87, but rice stocks are forecast to rise further unless the Government is able to find export markets for coarse varieties of rice. The outlook for a further increase in rice stocks may lead to efforts to boost both domestic distribution and exports.

### **Nepal**

#### *Food Grain Production Shows Small Gain in 1985/86*

Food grains occupy about 90 percent of total cropped area in Nepal. Rice, the most important food grain, is grown in the Tarai (plains) and on terraced land in the mountains. It receives more irrigation than any other major food crop, but the size of the crop is still very dependent on rainfall. Maize is the most important crop grown on sloping land. Wheat is usually grown on residual moisture after rice.

In 1985/86, total food grain output rose to an estimated 3.5 million tons. Rice production increased 3.5 percent to 1.9 million tons and wheat production was up over 10 percent to nearly 600,000 tons. Corn production also improved by over 6 percent to more than 870,000 tons.

The 1986/87 crops are reported to be suffering from poor distribution of rainfall, with serious droughts in the eastern and western Tarai and flooding in the western hills. While the absence of reliable weather data for August and September preclude an accurate estimate of food grain production, it seems likely that all major crops will be affected. Rice will be hit hardest by the drought in the eastern Tarai, and production is projected to be down by about 15 percent on slightly lower area. Less of the corn crop may be harvested because of damage by extremely heavy rains in parts of the western hills.



Increased wheat plantings are anticipated in response to the rice and corn setbacks and, on average, the wheat moisture conditions are about normal. The Government has already purchased 30,000 tons of wheat from India and has made a formal request for food aid. Severe logistical constraints will hamper any food imports.

### *Production Potential Remains Limited*

Over the next 5 years, the most likely scenario is modest growth in food grain production. Very little area is available for expansion of rice and corn, but wheat has some potential for increased cultivation. Rice yields are unlikely to increase as cropping intensifies and the per hectare availability of manure continues to decline. Nepal's very poor farmers are often reluctant to take the risks involved in applying cash inputs like fertilizer, and input supply problems have also prevented progressive farmers from reaping the full benefits of improved varieties. Wheat probably has the most genetic potential for yield increases, and Tarai farmers often benefit directly from improvements in India. Corn probably has the least potential. Extension efforts also face the most difficult task with corn farmers, because they are the poorest and the least accessible. With population projected to grow at more than 2.5 percent per year, there will be a further widening of the already large nutritional gap, and growing food import needs are projected.

## **Pakistan**

### *Record Wheat Crop Boosts Cereal Output*

A strong recovery in wheat production after consecutive years of weather-induced setbacks boosted Pakistan's cereal harvest nearly 11 percent to a record 18.5 million tons in 1985/86. The wheat crop harvested during April-June 1986 is estimated at 13.8 million tons, 18 percent above 1984/85 and 11 percent above the previous record in 1982/83. The 1985/86 crop was planted under ideal conditions, with producers benefiting from a 14-percent increase in the support price and improved input supplies. The use of fertilizers increased 16 percent. Such favorable conditions helped boost yield 16 percent to a record 1.8 metric tons per hectare.

The large wheat harvest more than offset an 11-percent decline in rice output and continued sluggish growth in coarse grain production. The 1985/86 rice crop is estimated at 2.96 million tons, the lowest since 1977/78, primarily because consecutive years of poor monsoon rainfall led to a critical shortage of irrigation water. Shortages of canal water during planting contributed to a 9-percent drop in rice area and a 4-percent decline in yield. Coarse grain production was up about 1 percent to 1.7 million tons because of generally favorable weather for the sorghum and corn crops.

### *Wheat Imports and Rice Exports Rise in 1985/86*

Setbacks in wheat production in 1984 and 1985 led Pakistan to make its largest wheat imports in 7 years in 1985/86. Imports during 1985/86 (July/June) are estimated at 1.6 million tons, up sharply from 1 million a year earlier. Imports included about 350,000 tons of donations for the Afghan Refugee Relief Program that has been in place since 1980, with the remainder consisting of commercial and concessional imports to meet public distribution and stockbuilding needs. About 500,000 tons of Australian and Argentine wheat were imported through barter agreements with eastern and northern European countries to which Pakistan exports urea. The United States supplied about 1.1 million tons, or nearly 70 percent, of Pakistan's requirements, primarily through the GSM-102, P.L. 480, Title I, and Afghan Refugee Relief programs. The imports enabled the Government to maintain distribution of subsidized wheat through ration shops to stabilize prices, and also to build record wheat stocks of about 2.8 million tons.

Despite the setback in production, rice exports by Pakistan, the world's third leading supplier, increased in 1985/86 (July/June) because of low domestic prices, ample stocks, export promotion efforts, and stronger demand in the Middle East and Africa. Rice exports during 1985/86 are estimated at 1.3 million tons, compared with 836,000 tons in 1984/85. Pakistan's rice exports consist of about 30 percent basmati rice sold primarily in the Middle East, and 70 percent coarse varieties that are marketed primarily in African countries.



### *Wheat Imports To Drop in 1986/87*

Record carryover stocks from the 1985/86 season, combined with the record 1986 harvest, will lead to a sharp drop in Pakistan's wheat import requirements in 1986/87. Government procurement will more than cover domestic distribution needs and will likely further increase stocks to a burdensome 3.4 million tons. As a result, wheat imports during 1986/87 (July/June) are expected to be limited to about 325,000 tons of donations through the Afghan Refugee Relief Program. Prospects for further stock increases may lead to a renewal of wheat exports to Iran and other nearby countries, and a 1-million ton deal with Iran is being discussed. Pakistan exported 332,000 tons of wheat, primarily to Iran, during an earlier period of surplus stocks in 1982/83-1984/85. The Government may wait until the status of the 1987 wheat crop, to be planted during November 1986, is better known before making a decision on wheat exports. The current outlook for the 1987 crop is for a record harvest of about 14 million tons, based on government plans to boost both area and yield and assuming normal weather.

The 1986/87 rice crop is forecast at 3.4 million tons, with improved supplies of irrigation water and normal rainfall leading to a recovery in both plantings and average yield. Monsoon performance so far supports the forecast. Although rice stocks were reduced to abnormally low levels in 1985/86 because of the poor harvest and increased exports, rice exports are forecast to reach at least 1 million tons in 1986/87. Rice exports are likely to be sustained because of competitive prices, increased promotion, and well-established markets in Africa and the Middle East.

### *Food Grain Production Remains Key Policy Priority*

Pakistan's agricultural policy has historically afforded the highest priority to expanding wheat production to achieve self-sufficiency. The outlook for declining world wheat prices is not expected to influence efforts to sustain self-sufficiency, although stiff price competition will hinder efforts to market exportable surpluses that may emerge in the future. Despite generally strong growth in wheat production since the

mid-1970's, yields remain well below both international standards and those achieved by progressive farmers within the country. Hence, there is broad scope for boosting productivity and reducing unit costs through improved extension, better irrigation water management, and improved supplies of fertilizer, seeds, and credit. Following the increase in 1985/86, the producer support price for wheat is now Rs 1,925 (\$113) per ton.

Despite the importance of rice export earnings to the economy, expansion of rice production and exports has not been a top priority in recent years because rice is not an important domestic food staple, and because of the thin and highly competitive world market. However, as with wheat, rice productivity remains well below potential and there is scope for increasing production, particularly if improvements can be made in irrigation water management. In addition, support prices for rice of Rs 2,475 (\$155) per ton for coarse varieties and Rs 4,375 (\$273) per ton for basmati remain highly competitive in world markets.

### *Sri Lanka*

#### *Food Grain Imports Rise in 1985 Despite Record Harvest*

Rice is the only food grain Sri Lanka produces in significant quantities. It occupies about 80 percent of food cropland and about 40 percent of all cropland. In 1985, rice production rose to a record 1.8 million tons due to favorable weather. Area under cultivation was down slightly from the 1984 peak, but yield was surpassed only by that in 1983. Yields and fertilizer applications per hectare have increased steadily with improvements in fertilizer availability and timeliness of supply. Over the past 10 years, Sri Lankan farmers have enjoyed a very favorable fertilizer-to-paddy price ratio. Fertilizer use for rice rose more than 8 percent to over 200,000 tons in 1985.

Sri Lanka's rice imports have been modest since the late 1970's. In 1985, despite higher production, imports rose to about 195,000 tons, compared with 40,000 tons during 1984. The Government sought to rebuild stocks after poor production in 1984 and in light of the



prevailing disturbances. The bulk of rice imports came from China under a long-standing barter agreement.

Wheat is part of the traditional diet of the Tamil population in the north and a preferred food among the affluent. However, wheat imports during the 1980's have averaged below the late 1970's because of gains in rice production and relatively high domestic wheat prices. Wheat imports during 1985/86 (July/June) fell about 8 percent to 595,000 tons because of good rice supplies and comfortable stocks. Traditional suppliers are the United States, Canada, the EC, and Australia, and competition from these sources reduced the U.S. market share to about 38 percent in 1985/86, compared with an average of 53 percent during the previous 4 years. Virtually all U.S. sales were through concessional programs during 1985/86.

#### *Small Rise in Imports Expected in 1986/87*

Sri Lanka's total rice production in 1986 is estimated at about 1.7 million tons, down from 1.8 million the previous year. Output of the Maha (main) crop is down due to early floods and heavy rain at harvest. The Yala (secondary) crop is also expected to be lower because of dry weather after planting. Sri Lanka is expected to import about 250,000 tons of rice during 1986, most of which will probably come from China, Burma, and Pakistan. Wheat imports are forecast to rise to about 625,000 tons in 1986/87 to ensure adequate stocks. Although competition from

other suppliers for commercial sales will remain intense, the U.S. market share may rise to close to 50 percent because of additional sales under the Export Enhancement Program.

#### *Policies Focus on Self-Sufficiency and Diversification*

Agricultural development has been the cornerstone of the development effort and is expected to remain so during the next 5 years. Expansion of rice production, the largest sector of the economy, will still be the key priority. Increases in irrigation capacity under the Mahaweli hydroelectric/irrigation project will continue through the late 1980's, allowing the cultivation of irrigated rice where rice could not be planted before. In the last 10 years, the fraction of irrigated riceland has grown from about three-fifths to about two-thirds, although the decrease in rainfed rice land has been very small.

The general subsidy on rice and wheat has been replaced by a smaller, targeted food stamp program. After some initial sharp upward adjustments, however, consumers have enjoyed relatively stable rice prices. The nominal wholesale price increased only 20 percent over the past 5 years. Rice marketing is now almost entirely in the private sector, although the Government purchases some rice in price support operations. Wheat is not produced in Sri Lanka. Sale prices of imported wheat are now pegged above rice prices to deter consumer substitution of wheat for rice and prevent disincentives to rice producers. Nevertheless, because of preference for wheat among high-income consumers, imports will continue to grow.

Table 8--Wheat imports by Sri Lanka by source and type of financing (calendar year)

|               | Commercial |      |      | Concessional |      |      |
|---------------|------------|------|------|--------------|------|------|
|               | 1983       | 1984 | 1985 | 1983         | 1984 | 1985 |
|               | 1,000 tons |      |      |              |      |      |
| Wheat         |            |      |      |              |      |      |
| Argentina     | --         | 31   | 52   | --           | --   | --   |
| Australia     | 53         | 13   | 289  | 10           | 40   | --   |
| Canada        | 109        | 87   | --   | 41           | 86   | 36   |
| EC            | --         | --   | --   | 37           | 60   | 40   |
| France        | 148        | --   | 52   | --           | --   | --   |
| United States | --         | 89   | --   | 174          | 166  | 196  |
| Total         | 310        | 220  | 393  | 262          | 352  | 272  |

-- = None or negligible.

SOURCE: Government of Sri Lanka.

While the country is close to self-sufficiency in rice, there is a growing deficit in other foods. Thus, Sri Lanka is changing to a policy of maximizing food self-sufficiency, i.e. toward agricultural diversification. The Five-Year Development Plan of the Ministry of Agricultural Development and Research calls for a doubling of production of subsidiary food crops under both rainfed and irrigated conditions. The Government plans to include the subsidiary food crops in the floor price scheme.



## Five-Year Outlook for Wheat and Rice

### Wheat Self-Sufficiency Projected To Rise

Wheat import demand in South Asia is projected to continue to decline over the next 5 years. The outlook for declining world wheat prices is not expected to alter the food grain self-sufficiency goals that are a key policy priority for all countries in the region. The principal impact of low world wheat prices is expected to be in India and Pakistan, where difficulty in exporting current and future surpluses may lead to relatively large stocks, lower internal prices, and somewhat slower growth in production. Although increases in wheat area will slow because of land constraints and diversification, continued strong growth in yields is indicated by generally high-quality soils, further expansion of irrigated area, and steady improvements in input use and cultural practices. While rising incomes, urbanization, and population growth will continue to stimulate growth in wheat demand, somewhat slower overall growth in consumption is likely in the next 5 years because of increased rice supplies and because

of the relatively high levels of per capita wheat use already achieved in some countries.

The region's average annual net imports of wheat fell from 8.5 million tons in 1974-76 to 3.4 million in 1984-86, and are projected to fall to 2.4 million tons by 1990. Average annual imports are projected at 2.6 million tons by 1990, with Bangladesh and Sri Lanka accounting for about 85 percent of the total. Average annual wheat exports by India and Pakistan are projected at 200,000 tons. Only Sri Lanka is expected to show some growth in imports. Although the region's wheat imports are normally unstable because of weather-induced variability in food grain production, fluctuations in import demand may be reduced over the next 5 years because of increased irrigation and because India is unlikely to reenter the market as an importer. The U.S. share of South Asian wheat imports averaged 46 percent (1.9 million tons) during 1983/84-1985/86 and, with a constant market share, annual U.S. wheat sales to the region may fall to an average of about 1.2 million tons by 1990. Concessional and credit programs will probably become increasingly important marketing tools because Bangladesh and Sri Lanka are likely to continue to seek concessional terms or credit for their purchases.

### Rice Imports Projected To Fall; Exports To Rise

Gains in rice production by importing countries are projected to lead to a further decline in South Asian rice imports over the next 5 years. The primary effect of low world rice prices is expected to be slowed growth in exports of coarse varieties of rice, in favor of basmati rice, by Pakistan, the region's traditional large rice exporter. Lower world rice prices are not expected to alter self-sufficiency goals, or the price and production enhancement policies of Bangladesh, India, Nepal, or Sri Lanka, countries where rice is the principal food staple.

Increased plantings of irrigated winter rice are expected to continue to boost both area and yields in Bangladesh, while gains in Sri Lanka are driven primarily by rising yields on irrigated land. In both of these countries, production gains are expected to outstrip growth in demand. Somewhat slower gains in

Table 9—Historical and projected supply and use of wheat in South Asia

| Country    | Area        | Yield        | Pro-<br>duc-<br>tion | Consumption |               | Net<br>Imports |
|------------|-------------|--------------|----------------------|-------------|---------------|----------------|
|            |             |              |                      | Total       | Per<br>capita |                |
|            | Mil.<br>ha. | Tons/<br>ha. | Mil. tons            | Kgs.        |               | Mil.<br>tons   |
| Bangladesh |             |              |                      |             |               |                |
| 1974-76    | .2          | 1.3          | .2                   | 1.4         | 18.4          | 1.2            |
| 1984-86    | .6          | 2.2          | 1.3                  | 3.1         | 30.5          | 1.7            |
| 1990       | .8          | 2.5          | 2.0                  | 3.5         | 29.8          | 1.5            |
| India      |             |              |                      |             |               |                |
| 1974-76    | 19.0        | 1.3          | 24.9                 | 27.5        | 45.0          | 5.6            |
| 1984-86    | 24.5        | 1.9          | 45.6                 | 44.4        | 57.9          | —              |
| 1990       | 24.9        | 2.2          | 54.8                 | 55.9        | 65.6          | —              |
| Nepal      |             |              |                      |             |               |                |
| 1974-76    | .3          | 1.1          | .4                   | .4          | 27.1          | —              |
| 1984-86    | .5          | 1.2          | .6                   | .6          | 35.5          | —              |
| 1990       | .6          | 1.4          | .8                   | .8          | 41.1          | —              |
| Pakistan   |             |              |                      |             |               |                |
| 1974-76    | 6.0         | 1.3          | 8.0                  | 9.2         | 122.7         | 1.0            |
| 1984-86    | 7.3         | 1.7          | 12.1                 | 12.9        | 128.2         | 1.1            |
| 1990       | 7.8         | 1.9          | 14.8                 | 15.0        | 128.5         | .2             |
| Sri Lanka  |             |              |                      |             |               |                |
| 1974-76    | —           | —            | —                    | .7          | 49.5          | .7             |
| 1984-86    | —           | —            | —                    | .6          | 38.4          | .6             |
| 1990       | —           | —            | —                    | .7          | 38.6          | .7             |
| Total      |             |              |                      |             |               |                |
| 1974-76    | 25.5        | 1.3          | 33.5                 | 39.2        | 50.5          | 8.5            |
| 1984-86    | 32.9        | 1.8          | 59.6                 | 61.6        | 61.6          | 3.4            |
| 1990       | 34.1        | 2.1          | 72.4                 | 75.9        | 68.0          | 2.4            |

— = less than 50,000 ha. or 50,000 tons.

SOURCE: USDA data and ERS projections.



Table 10—Historical and projected supply and use of rice in South Asia

| Country    | Area        | Yield        | Pro-<br>duc-<br>tion | Consumption |               | Net<br>Imports |
|------------|-------------|--------------|----------------------|-------------|---------------|----------------|
|            |             |              |                      | Total       | Per<br>capita |                |
|            | Mil.<br>ha. | Tons/<br>ha. | Mil. tons            |             | Kgs.          | Mil.<br>tons   |
| Bangladesh |             |              |                      |             |               |                |
| 1974-76    | 10.0        | 1.2          | 11.9                 | 12.2        | 159.6         | .3             |
| 1984-86    | 10.4        | 1.5          | 15.1                 | 15.4        | 152.7         | .3             |
| 1990       | 10.9        | 1.6          | 17.4                 | 17.5        | 153.7         | .1             |
| India      |             |              |                      |             |               |                |
| 1974-76    | 38.6        | 1.1          | 43.4                 | 43.5        | 71.5          | .1             |
| 1984-86    | 41.2        | 1.5          | 59.9                 | 59.4        | 77.6          | -.2            |
| 1990       | 41.6        | 1.5          | 63.9                 | 63.9        | 75.4          | -.2            |
| Nepal      |             |              |                      |             |               |                |
| 1974-76    | 1.3         | 1.3          | 1.7                  | 1.5         | 115.3         | -.1            |
| 1984-86    | 1.4         | 1.3          | 1.8                  | 1.7         | 102.6         | —              |
| 1990       | 1.4         | 1.3          | 1.8                  | 2.0         | 101.6         | .1             |
| Pakistan   |             |              |                      |             |               |                |
| 1974-76    | 1.7         | 1.5          | 2.6                  | 1.9         | 25.6          | -.7            |
| 1984-86    | 1.9         | 1.7          | 3.2                  | 2.3         | 23.0          | -.9            |
| 1990       | 2.1         | 1.9          | 4.0                  | 2.7         | 23.5          | -1.3           |
| Sri Lanka  |             |              |                      |             |               |                |
| 1974-76    | .7          | 1.3          | .9                   | 1.3         | 95.3          | .4             |
| 1984-86    | .9          | 1.9          | 1.7                  | 1.9         | 117.3         | .2             |
| 1990       | .9          | 2.3          | 2.1                  | 2.1         | 119.4         | —              |
| Total      |             |              |                      |             |               |                |
| 1974-76    | 52.3        | 1.2          | 60.5                 | 60.4        | 76.8          | —              |
| 1984-86    | 55.8        | 1.5          | 81.7                 | 80.7        | 80.7          | -.6            |
| 1990       | 56.9        | 1.6          | 89.2                 | 88.2        | 79.1          | -1.3           |

— = less than 50,000 tons.

SOURCE: USDA data and ERS projections.

Indian rice production and consumption are expected over the next 5 years, because of the above-trend levels of production and consumption reached during 1984-86, and because it will be difficult to achieve rapid growth in production as efforts shift to the major rice producing areas of eastern India. In Pakistan, where rice is not the major food staple, growth in rice demand will remain sluggish, and yields from its predominantly irrigated production base are projected to improve substantially over the relatively low 1984-86 average.

The region's annual average net exports of rice are projected to rise from about 600,000 tons during 1984-86 to about 1.3 million by 1990. Both Pakistan and India are expected to be net exporters, with exports likely to consist increasingly of long-grained, aromatic basmati rice for which world supplies will not be so plentiful. Bangladesh and Sri Lanka, the region's traditional rice importers, are projected to reduce their average annual imports from about 500,000 tons in 1984-86 to 100,000-150,000 tons by 1990. However, the

region's rice imports and exports are likely to remain unstable. Weather-induced fluctuations in local production will continue to affect import demand and export supplies in India, Bangladesh, and Sri Lanka. In addition, low landed costs for imported rice may lead to occasional substitution of more-favored rice for wheat in the region's cereal imports.

The projections suggest very limited scope for expansion of U.S. rice exports to South Asia over the next 5 years. U.S. rice exports to the region during 1983-85, consisting almost exclusively of concessional sales to Bangladesh, averaged 78,000 tons for an 11-percent market share. Thailand and Burma are likely to continue their stiff price competition for the region's purchases of relatively low-quality rice, so larger U.S. sales will likely require the expansion of concessional programs.

## OILSEED SECTOR DEVELOPMENTS AND OUTLOOK

### Overview

#### *Region's Oil Imports Off Slightly in 1985/86*

Oilseed harvests in South Asia in 1985/86 were mixed. In India, production fell about 7 percent from the 1984/85 record because severe drought damage to the peanut crop more than offset higher or stable production of most other oilseeds. Pakistani oilseed production was up about 20 percent from the 1984/85 record on the strength of another record outturn of cotton and cottonseed. Good weather led to higher oilseed harvests in Bangladesh and sustained high output of copra in Sri Lanka.

The region's vegetable oil imports were off about 2 percent to an estimated 2.21 million tons in 1985/86 (October/September), remaining well below the 1983/84 record of 2.48 million tons. Import behavior by India and Pakistan, two of the world's largest importers, contrasted their differing policies towards oilseed development: India reduced oil imports despite lower domestic production in order to strengthen producer price incentives, and Pakistan increased imports despite record production in order to hold prices down and boost consumption. After 2 years of abnormally large purchases, India

reduced its imports about 15 percent to an estimated 1.15 million tons by curbing use of imported oil in the vanaspati (hydrogenated oil) industry, leading to strengthened domestic prices by mid-1985/86. Pakistan's 1985/86 imports are estimated at 781,000 tons, 17 percent above the 1984/85 record, leading to sustained high growth in domestic use and signaling that regulatory reforms adopted during the year may not alter the upward trend in oil imports. Bangladesh's oil imports rose about 20 percent, with low palm oil prices prompting stock building.

Palm oil's share of the region's edible oil imports climbed to a 10-year high of about 70 percent in 1985/86, while the market share for soybean oil dropped to about 22 percent, a 10-year low. Palm oil imports rose 12 percent to more than 1.5 million tons in 1985/86 and dominated commercial purchases, as substantially lower landed prices led to increased substitution of palm oil in vanaspati and cooking oil uses. Soybean oil imports fell about 20 percent to an estimated 495,000 tons, as Indian purchases dropped to a 10-year low. However, U.S. soybean oil exports to the region were up about 20 percent to an estimated 297,000 tons, primarily to Pakistan, and virtually all through concessional and credit programs.

#### *Little Growth in Oil Imports Forecast for 1986/87*

Record or near-record oilseed harvests are forecast in the region for 1986/87, assuming normal rainfall for the remainder of the 1986 monsoon. Strengthening domestic

prices are expected to increase oilseed plantings in India, and monsoon performance so far has supported improved yields. Pakistan's oilseed output is currently forecast to be down about 5 percent as cotton

Table 11—Production of selected oilseeds in South Asia 1/

| Country           | 1983/84 | 1984/85 | 1985/86 est. | 1986/87 proj. |
|-------------------|---------|---------|--------------|---------------|
| 1,000 tons        |         |         |              |               |
| <b>Bangladesh</b> |         |         |              |               |
| Peanuts           | 22      | 21      | 23           | 25            |
| Rapeseed          | 131     | 140     | 145          | 150           |
| Total             | 153     | 161     | 168          | 175           |
| <b>India</b>      |         |         |              |               |
| Copra             | 300     | 360     | 380          | 380           |
| Cottonseed        | 2,647   | 3,447   | 3,652        | 3,480         |
| Flaxseed          | 444     | 388     | 450          | 450           |
| Peanuts           | 7,085   | 6,744   | 5,200        | 6,300         |
| Nigerseed         | 176     | 147     | 150          | 160           |
| Rapeseed          | 2,608   | 3,030   | 3,000        | 3,300         |
| Safflower         | 501     | 497     | 500          | 550           |
| Sesame            | 559     | 525     | 540          | 550           |
| Soybean           | 614     | 934     | 1,100        | 1,250         |
| Sunflowerseed     | 300     | 365     | 300          | 400           |
| Total             | 15,234  | 16,437  | 15,272       | 16,820        |
| <b>Pakistan</b>   |         |         |              |               |
| Cottonseed        | 1,021   | 2,014   | 2,468        | 2,320         |
| Peanuts           | 88      | 69      | 65           | 70            |
| Rapeseed          | 217     | 234     | 242          | 250           |
| Sunflower         | 15      | 16      | 20           | 24            |
| Total             | 1,341   | 2,333   | 2,795        | 2,664         |
| <b>Sri Lanka</b>  |         |         |              |               |
| Copra             | 62      | 240     | 230          | 230           |

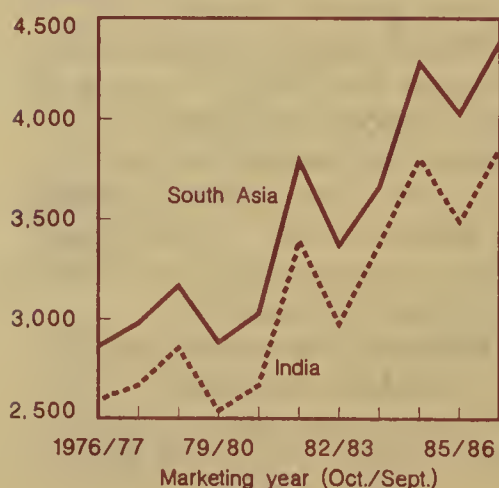
1/ Production reported by local July/June crop years, except Sri Lanka where production is for January-December of the first year.

SOURCES: Official government data in each country, USDA estimates.

#### **Edible Oils**

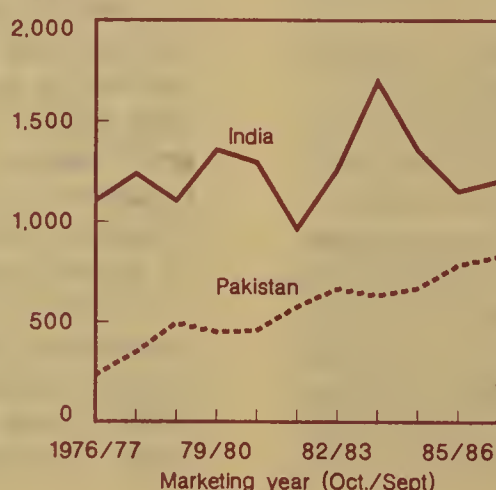
##### **Production**

Thousand tons



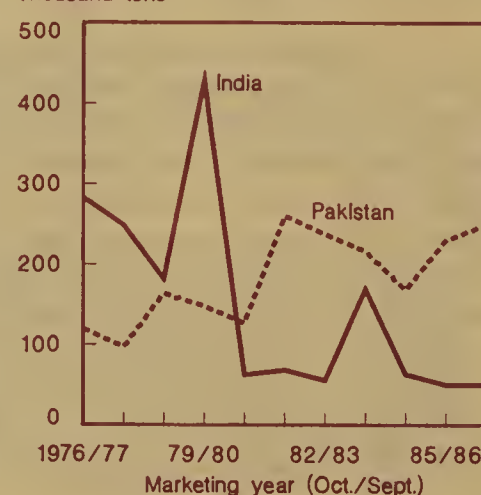
##### **Imports**

Thousand tons



##### **U.S. Soybean Oil Exports**

Thousand tons





production retreats from the 1985/86 record, but could be higher if weather remains good. Slightly larger oilseed harvests are forecast in Bangladesh because of good weather.

If current oilseed production forecasts hold up, the region's total edible oil imports in 1986/87 may rise to about 2.3 million tons. India's imports are forecast to rise marginally to about 1.2 million tons, despite improved production, primarily because of reduced carryin stocks. However, efforts to curb use of imported oils in vanaspati and strengthen domestic prices are expected to be continued and could lead to a decline in imports. Pakistan's imports are forecast to rise to 825,000 tons or more as low consumer prices remain the top priority. However, Bangladesh's imports are expected to fall about 25 percent as large stocks are reduced. Soybean oil is forecast to account for a higher share of the region's oil imports in 1986/87, although relatively low-priced palm oil is expected to maintain its dominant market share. Total soybean oil imports are forecast to rise nearly 20 percent to almost 600,000 tons, as reduced stocks lead to larger Indian purchases, and Pakistan increases its purchases of U.S. soybean oil. Total palm oil imports are forecast at 1.5 million tons, a two-thirds market share. U.S. soybean oil exports to the region are forecast to rise about 8 percent to 320,000 tons in 1986/87, nearly all through concessional and credit programs.

#### *Region's Edible Oil Imports Projected To Decline by 1990*

South Asia's annual average imports of vegetable oils are projected to fall from 2.3 million tons during 1984-86 to about 2.2 million by 1990. India is expected to account for all of the decline as gains in domestic production in response to recent policy initiatives gradually reduce import requirements. However, the outlook for low world vegetable oil prices is expected to contribute to a steady, but slower, increase in Pakistan's oil imports as the Government opts not to invest heavily in the introduction of nontraditional oilseeds. Severe foreign exchange constraints are projected to prevent growth in Bangladesh's oil imports. A decline in the region's total oil imports, coupled with continued competition from Malaysian palm oil, may lead to a contracting South Asian

market for soybean oil through 1990. If recent developments in market shares continue, U.S. soybean oil sales in the region may fall to 240,000-290,000 tons by 1990, compared with the 1984-86 average of 338,000 tons.

#### *Bangladesh*

##### *Oil Imports Rise in 1985/86*

Oilseed and edible oil production in Bangladesh continued to show little growth in 1985/86. Edible oil output, primarily from rapeseed, was unchanged at about 57,000 tons. Inadequate domestic production, coupled with low world vegetable oil prices, led to a 20-percent increase in government imports of oil to about 275,000 tons in 1985/86 (October/September). Larger imports led to an estimated 11-percent rise in domestic disappearance, as well as a further buildup of stocks.

Relatively low-priced palm oil accounted for about 75 percent (210,000 tons) of total imports, compared with 70 percent (160,000 tons) in 1984/85 and 52 percent (79,000 tons) in 1983/84. The market share of soybean oil continued to decline and reached about 15 percent (40,000 tons) in 1985/86, while imports of coconut oil held at 20,000-25,000 tons. Concessional U.S. supplies accounted for about half of soybean oil imports.

##### *High Stocks Likely To Reduce Oil Imports in 1986/87*

Little growth is likely in domestic production of oilseeds and oils in 1986/87, but oil imports are expected to decline. Abnormally large carryover stocks, estimated at more than half of domestic requirements, are likely to lead to reduced outlays of scarce foreign exchange for oil imports. Imports are forecast to fall nearly 25 percent to about 210,000 tons. Imports of palm oil are expected to absorb the bulk of the decline and fall to about 150,000 tons because most of the stock excess is of palm oil, and because palm oil is purchased exclusively on commercial terms. The availability of concessional supplies is forecast to hold soybean oil imports at about 40,000 tons, with U.S. soybean oil accounting for about a 50-percent share.

Although per capita availabilities of less than 3 kgs. per year remain very low,



expansion of oilseed production and oil imports are not a high government priority. Limited government resources continue to be directed at developing the food grain sector, while scarce foreign exchange is devoted to imports of food grains needed to maintain price stability, and to imports of development goods. While low world prices contributed to larger edible oil imports during 1984/85 and 1985/86, reallocation of foreign exchange to higher priority items is expected to prevent rapid future growth in imports.

## India

### *Dry Weather Reduces 1985/86 Oilseed Harvest*

Indian oilseed production fell about 7 percent from the 1984/85 record in 1985/86, primarily because of a smaller peanut crop. Peanut production dropped about 23 percent because a prolonged drought in the major producing state of Gujarat, coupled with dry weather in other important producing areas, reduced the kharif (spring-planted, fall-harvested) crop to the lowest level since 1971/72. Reduced soil moisture and irrigation water supplies in Gujarat also led to the first decline in the rabi (fall-planted, spring-harvested) peanut crop since 1976/77. The strong upward trend in rapeseed production was interrupted by dry winter weather in central India, with the 1986 harvest estimated at 3 million tons, unchanged from the 1985 record. The decline in peanut production in 1985/86 was partially offset by improved harvests of most other oilseeds, including record crops of cottonseed and soybeans. Soybean production achieved its eleventh consecutive record in 1985/86. Government promotion and a remunerative market created, in part, by surplus processing capacity, continued to stimulate increased plantings during the monsoon season in central India.

Declining oilseed producer price incentives became a source of concern among policymakers during 1985/86. Since the late 1970's, government imports of edible oils were generally at levels that supported a steady increase in oilseed producer prices, contributing to increases in oilseed area and yields. However, relatively large oil imports in 1983/84 and 1984/85, despite high domestic

production, eventually led to stock buildups and declining real prices for domestic oilseeds and oils from late 1984 to early 1986. Although weaker prices do not appear to have affected oilseed plantings in 1985/86, in part because prices of competing cereal crops were also low, the Government acted to strengthen oilseed prices by reducing edible oil imports and raising support prices.

### *Edible Oil Imports Reduced in 1985/86 Despite Lower Production*

India's imports of edible oils fell about 15 percent to an estimated 1.15 million tons in 1985/86 (October/September), the lowest since 1981/82. Relatively high stocks of imported oils, particularly soybean oil, coupled with sharp reductions in allocations of imported oils to the vanaspati (hydrogenated oil) industry, led to the decline. Allocations of imported oils to vanaspati producers, which normally account for about 75 percent of the industry's requirements, were reduced to as low as 30 percent of requirements during early 1985/86 to boost demand and sagging prices for domestic oils. Restrictions on the use of domestic rapeseed oil were eased to take advantage of recent gains in production and ensure adequate supplies to the industry. In addition, voluntary price controls on vanaspati were eliminated during the year to compensate the industry for reduced availability of lower-priced imported oils, leading to reduced demand and lower production of vanaspati.

These cutbacks contributed to substantially higher prices for domestic oils beginning in spring 1986, prompting the Government to raise oil allocations as high as 80 percent of requirements and quicken the pace of imports during July-September. Use of imported oil in vanaspati fell from about 620,000 tons (68 percent of requirements) in 1984/85 to about 475,000 tons (55 percent) in 1985/86.

Lower domestic prices also led to reduced distribution of imported oil through the Public Distribution System (PDS), the other marketing channel for imported oil, during early 1985/86. However, strengthening internal prices late in the year brought on increased distribution and, for the year, PDS use of imported oil was up about 10 percent to 780,000 tons. For the year, total use of



Table 12--Supply and use of edible oils in India (October/September)

|                        | 1983/84    | 1984/85 | 1985/86<br>est. | 1986/87<br>for. |
|------------------------|------------|---------|-----------------|-----------------|
|                        | 1,000 tons |         |                 |                 |
| Opening stocks         | 150        | 390     | 340             | 200             |
| Production             |            |         |                 |                 |
| Coconut                | 189        | 226     | 236             | 236             |
| Cottonseed             | 242        | 316     | 331             | 310             |
| Peanut                 | 1,608      | 1,592   | 1,237           | 1,463           |
| Linseed                | 128        | 146     | 130             | 130             |
| Nigerseed              | 53         | 44      | 44              | 47              |
| Rapeseed               | 683        | 942     | 965             | 990             |
| Safflower              | 107        | 106     | 107             | 106             |
| Sesame                 | 169        | 159     | 163             | 167             |
| Soybean                | 95         | 146     | 173             | 196             |
| Sunflower              | 102        | 124     | 102             | 135             |
| Total                  | 3,376      | 3,801   | 3,488           | 3,780           |
| Imports 1/             |            |         |                 |                 |
| Palm                   | 557        | 728     | 760             | 775             |
| Rapeseed               | 268        | 229     | 160             | 175             |
| Soybean                | 808        | 398     | 225             | 300             |
| Other                  | 64         | 0       | 0               | 0               |
| Total                  | 1,697      | 1,355   | 1,145           | 1,250           |
| Exports                | 0          | 0       | 0               | 0               |
| Domestic disappearance |            |         |                 |                 |
| Per capita             |            |         |                 |                 |
| (Kgs.)                 | 6.6        | 6.9     | 6.2             | 6.3             |
| Ending stocks          | 390        | 340     | 200             | 200             |

1/ Imports based on partner-country export data.

SOURCES: Government of India, partner-country trade data, USDA estimates.

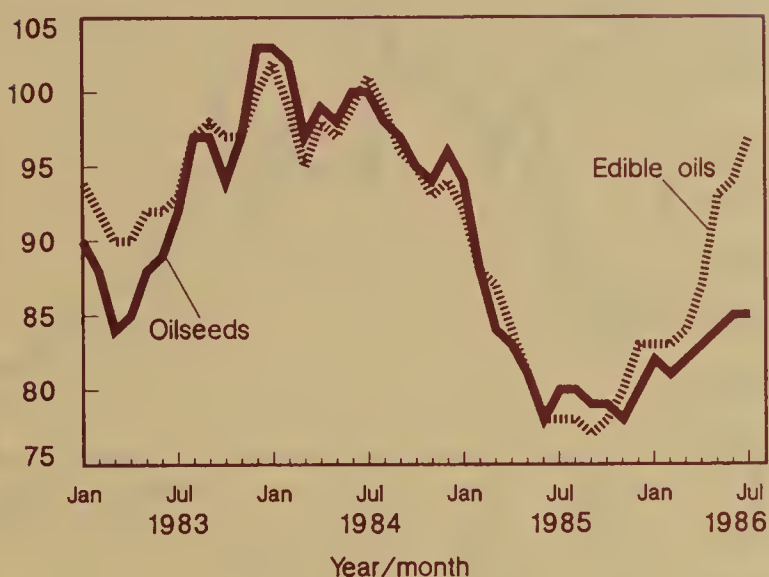
imported oils exceeded imports, and yearend stocks of imported oils held by the State Trading Corporation (STC) fell to a more normal level of about 200,000 tons. Most of the decline occurred in stocks of soybean oil, which is used primarily in the vanaspati industry.

### *Palm Oil Achieves Record Market Share*

Palm oil accounted for a record two-thirds share of India's edible oil imports in 1985/86, while imports of soybean oil fell to the lowest level (225,000 tons) and market share (20 percent) since large-scale oil imports started in 1976/77. Landed prices for palm oil averaged about \$70 per ton lower than soybean oil during the year and, as a result, palm oil not only continued to account for the bulk of PDS sales, but also was substituted for soybean oil in vanaspati production. However, technical constraints

### **India: Deflated Wholesale Price Indices for Oilseeds and Edible Oils**

% of 1970/71



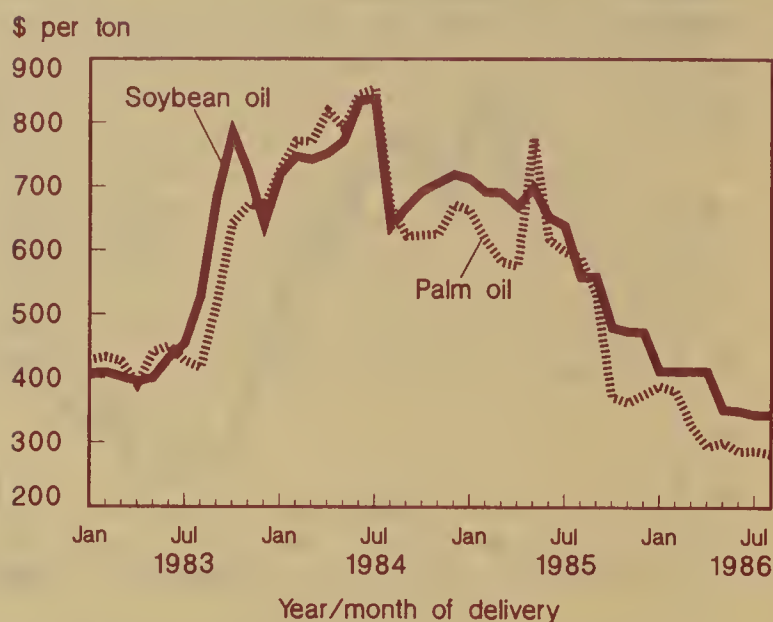
and taste considerations continued to limit the palm oil share of vanaspati to about 20 percent, leading to a guaranteed market for soybean oil despite its relatively high price. Imports of rapeseed oil, which is used in both vanaspati and the PDS, also fell in 1985/86 because of its high price relative to palm oil, and good supplies of domestic rapeseed oil.

Nearly all soybean purchases were from Brazil. U.S. exports of soybean oil to India fell from 63,000 tons in 1984/85 to an estimated 50,000 tons in 1985/86, with the P.L. 480, Title II program and the Export Enhancement Program accounting for all sales.

### *Policies Aim at Reducing Oil Imports*

Oilseed policy developments during 1985/86, including regulatory decisions on the use of imported oils and initiatives incorporated in the 7th Five Year Plan, reflect efforts to expand oilseed production and achieve edible oil self-sufficiency. The reduction in oil imports demonstrated government intentions to use the price mechanism both to manage growth in demand, and to raise oilseed producer incentives to induce area shifts from other crops and to foster use of improved practices. Support prices for all oilseeds were raised more than those for most competing crops in 1985/86, although market prices continued to rule above support levels and oilseed procurement mechanisms remained inadequate in many areas. The 7th plan targets annual growth in oilseed production at an ambitious 7 percent

## India: Landed Prices of Soybean and Palm Oil



during 1984/85–1989/90, compared with 4.2 percent during 1977/78–1984/85. Key initiatives include strengthened price support mechanisms, implementation of crop insurance to reduce the risk of input investments, increases in irrigated area planted to oilseeds, and higher investment in oilseed research and extension.

Policy developments during 1985/86 also aimed at boosting traditional exports of oilmeals by initiating a 10-percent export rebate scheme on meals. Although exports of relatively high quality soybean meal continued to expand steadily in recent years, traditional exports of peanut, cottonseed, and rapeseed meals have declined, despite generally low internal prices, because of poor quality and competition from other suppliers. The export rebate scheme may encourage quality enhancement and export promotion efforts, and may also help boost oilseed producer incentives by strengthening domestic prices for meals.

### *Larger 1986/87 Oilseed Harvests Forecast But Oil Imports May Rise*

Oilseed production is forecast to rise 10 percent to a record 16.8 million tons in 1986/87, assuming that more normal rainfall during September–October leads to a recovery in the peanut harvest and a resumption of the upward trend in rapeseed production. Although the 1986 monsoon has been erratic in key peanut areas of western and southern India, rainfall is currently expected to be adequate to support a modest recovery in

peanut production to about 6.3 million tons. Strengthening domestic prices since spring 1986 are expected to support a further increase in rapeseed production to a record 3.3 million tons, assuming normal winter rainfall. Another increase in soybean production is also forecast. Altogether, the larger oilseed harvests are forecast to boost domestic edible oil production about 10 percent.

Despite the expected increase in domestic production, India's oil imports are forecast to rise to about 1.25 million tons in 1986/87. While the Government is likely to continue to try to restrict imported oil use in vanaspati, lower STC stocks of oil and increased vanaspati production are likely to require larger oil imports to meet the requirements of the vanaspati industry. Oil import needs for the PDS are not expected to change in 1986/87, as improved supplies of peanut and rapeseed oils prevent a further increase in PDS allocations.

With the outlook for record supplies and continued low relative prices of Malaysian palm oil, palm oil is forecast to maintain its dominant share of India's imports in 1986/87. Relatively cheap palm oil will probably continue to meet the bulk of PDS needs, as well as about 20 percent of vanaspati industry requirements. However, with soybean oil stocks now at a normal level, the share of soybean oil in total imports is forecast to rise to about 300,000 tons to meet the remainder of vanaspati requirements. The rapeseed oil share of imports is expected to be maintained because of competitive prices relative to soybean oil. Soybean oil purchases are forecast to remain well below levels achieved as recently as 1983/84, and lower-priced Brazilian oil is likely to continue to account for most of India's commercial purchases. The U.S. share of India's soybean oil market is forecast to remain near 50,000 tons in 1986/87, with nearly all of it imported through concessional programs.

## Pakistan

### *Edible Oil Imports Rise in 1985/86 Despite Record Production*

Pakistan's oilseed production jumped 21 percent to a record 2.8 million tons in 1985/86 because of a record outturn of cottonseed,



which accounts for about 90 percent of Pakistan's oilseed production. The 1986 rapeseed harvest was also higher because of more favorable winter weather following 2 dry years. Production of nontraditional oilseeds, including soybeans, sunflower, and safflower, continued to show only small gains. On the strength of record cottonseed supplies, edible oil production increased 18 percent from the 1984/85 record. Efforts to expand oil production from sources other than cottonseed continued to be hampered by weak producer price incentives during 1985/86. Price incentives for oilseeds remained low relative to competing crops because the food grain and cotton sectors remained the top government priorities.

Despite record domestic oil supplies, Pakistan's edible oil imports increased 17 percent to an estimated record of 781,000 tons in 1985/86 (October/September). Large supplies of domestic and imported oils pushed down real prices of vegetable ghee (hydrogenated oil) by about 4 percent and, combined with continued strong growth in effective demand, resulted in an estimated 17-percent increase in total disappearance of edible oils. The large increase in total oil use in 1985/86 compares with an average growth rate of 10 percent during the last 10 years.

Palm oil continued to account for a dominant share of Pakistan's oil imports in 1985/86. Low relative palm oil prices, coupled with less severe technical and consumer taste constraints that exist in India, led to further substitution of palm oil for soybean oil in the production of vegetable ghee, the form in which 90 percent of edible oils are consumed. Commercial imports of palm oil in 1985/86 rose 13 percent to an estimated 550,000 tons, for a 70-percent market share. Soybean oil purchases were up about 30 percent to an estimated 230,000 tons, all supplied by the United States through concessional and credit programs.

#### *Policy Changes Create Uncertainty About Future Imports*

In April 1986, the Government announced a package of reforms in edible oil import and pricing policies that could influence future oil imports. The existing import surcharge on imported oils and the excise tax on vegetable ghee were abolished and replaced with a

Table 13--Supply and use of edible oils in Pakistan (October/September)

|                        | 1983/84    | 1984/85 | 1985/86<br>est. | 1986/87<br>for. |
|------------------------|------------|---------|-----------------|-----------------|
|                        | 1,000 tons |         |                 |                 |
| Opening stocks         | 69         | 77      | 75              | 80              |
| Production             |            |         |                 |                 |
| Cottonseed             | 113        | 205     | 252             | 237             |
| Linseed                | 2          | 2       | 2               | 2               |
| Rapeseed               | 72         | 78      | 80              | 84              |
| Sunflower              | 3          | 4       | 6               | 7               |
| Total                  | 190        | 289     | 340             | 330             |
| Imports 1/             |            |         |                 |                 |
| Palm                   | 328        | 487     | 550             | 575             |
| Soybean                | 301        | 174     | 230             | 250             |
| Other                  | 1          | 4       | 1               | 0               |
| Total                  | 630        | 665     | 781             | 825             |
| Exports                | 0          | 0       | 0               | 0               |
| Domestic disappearance |            |         |                 |                 |
| Per capita (Kgs.)      | 8.5        | 9.8     | 11.3            | 11.3            |
| Ending stocks          | 77         | 75      | 80              | 75              |

1/ Imports based on partner-country export data.

SOURCES: Government of Pakistan, partner-country trade data, USDA estimates.

regulatory import duty on oils. In addition, domestic prices of vegetable ghee and pure cooking oil were decontrolled. Private traders and processors had ceased importing oil because of high import duties and low domestic prices. The measures were taken, in part, to encourage them to import oil and to take advantage of credit, concessional, and barter possibilities. However, the Government maintains a strong regulatory presence in the market, because its vegetable ghee factories account for about 75 percent of production capacity.

The regulatory import duty was initially set at a level (Rs 2,350 or \$145 per ton at the April exchange rate) roughly equivalent to the previous import surcharge and excise tax, so there was no immediate impact on domestic oil prices or demand. However, the duty is subject to periodic review and was raised in late August to Rs 3,000 per ton (\$178 per ton at the August exchange rate). The key issue in assessing the outlook for oil imports is whether the duty is used to gradually raise domestic oil prices to manage growth in demand and stimulate production. Despite



lower world edible oil prices, the duty increase in August and the falling value of the rupee indicate a 4–5 percent real increase in the domestic price of imported oils since April 1986. Although policy has historically been to keep domestic oilseed and oil prices low, the Government may opt to raise the duty further to curb growing outlays of scarce foreign exchange, and to promote area shifts to oilseeds and away from surplus crops such as wheat, rice, and cotton. However, the current assessment is that political concern with the possible effects of higher consumer oil prices will prevent aggressive use of the duty as a demand management tool, at least in the near term.

#### *Further Growth in Oil Imports Forecast for 1986/87*

Production of oils is forecast to fall about 3 percent in 1986/87 because of a small retreat in cotton production. Only marginal gains are forecast in harvests of other oilseeds, which will continue to make only a minor contribution to edible oil supplies. Although the Government is expected to continue to hold domestic oil prices down, growth in demand for oils is forecast to be lower in 1986/87, because of somewhat slower growth in real incomes, and because it is unlikely that the large increases in apparent consumption registered during the previous 2 years will be repeated. In addition, available stock data only cover government stocks and both consumers and traders may have accumulated stocks during the last 2 years.

Oil imports are forecast to rise 6 percent to about 825,000 tons in 1986/87. Palm oil is forecast to maintain a dominant market share of about 70 percent because of its low price. Soybean oil imports are forecast to rise to about 250,000 tons, primarily on the basis of larger concessional and credit shipments from the United States.

### **Sri Lanka**

#### *Coconut Oil Exports Rebound in 1985*

Production of copra, Sri Lanka's principal oilseed, increased nearly four-fold to about 240,000 tons in 1985 as good weather and increased fertilization led to a sharp rebound in yields. Coconut oil output also rebounded,

leading to a strong recovery in coconut oil exports from 12,000 tons in 1984 to 66,000 tons in 1985—the highest since 1972. Imports of palm oil, a substitute for coconut oil in some uses, were negligible because of plentiful supplies of preferred coconut oil.

Good weather in 1985, combined with increases in productive area under improved varieties, are expected to sustain high levels of copra and coconut oil production in 1986. Supplies of coconut oil are likely to be adequate to sustain exports at about 65,000 tons and to prevent any increase in palm oil imports. Government investments and subsidies in the coconut industry, including measures to develop and distribute improved coconut varieties, were continued in 1985 and 1986 as part of plans to diversify development efforts into export and subsidiary food crops.

### **Five-Year Outlook for Oilseeds and Oils**

#### *Faster Growth in Oilseed Production Projected*

Stronger growth is projected in South Asian oilseed production during the next 5 years, as some countries begin to diversify their agricultural development efforts to exploit oilseed production potential and curb growth in outlays of scarce foreign exchange for edible oil imports. The most substantial gains are expected in India, the world's largest edible oil importer, where strengthened price incentives, research, and government promotion efforts have already contributed to higher growth since the late 1970's. India's broad and underutilized oilseed production base, coupled with further strengthening of relative oilseed prices and institutional support for the oilseed sector, are projected to lead to average annual growth in oilseed production of more than 4 percent over the next 5 years. Both area and yield gains are expected, particularly for peanuts, rapeseed, soybeans, and sunflower, as new seed varieties are introduced, more irrigated area is planted to oilseeds, and rainfed cultivation practices are improved.

The principal impact of low world vegetable oil prices is expected to be in Pakistan. Pakistan's narrow traditional oilseed production base, in which cottonseed



Table 14--Historical and projected supply and use of oilseeds in South Asia 1/

| Country      | Area           | Yield        | Pro-<br>duc-<br>tion | Consump-<br>tion | Net<br>imports |
|--------------|----------------|--------------|----------------------|------------------|----------------|
|              | Million<br>ha. | Tons/<br>ha. | -----<br>1,000 tons  | -----            | -----          |
| Bangladesh   |                |              |                      |                  |                |
| 1974-76      | .23            | .64          | .15                  | .19              | .04            |
| 1984-86      | .24            | .72          | .17                  | .17              | --             |
| 1990         | .26            | .75          | .19                  | .19              | --             |
| India        |                |              |                      |                  |                |
| 1974-76      | 24.95          | .49          | 12.16                | 11.81            | -.15           |
| 1984-86      | 27.46          | .57          | 15.65                | 15.62            | -.03           |
| 1990         | 29.45          | .65          | 19.11                | 19.03            | -.06           |
| Pakistan 2/  |                |              |                      |                  |                |
| 1974-76      | 2.44           | .62          | 1.50                 | 1.51             | --             |
| 1984-86      | 2.71           | .80          | 2.16                 | 2.16             | --             |
| 1990         | 2.79           | 1.03         | 2.87                 | 2.87             | --             |
| Sri Lanka 3/ |                |              |                      |                  |                |
| 1974-76      | NA             | NA           | .16                  | .15              | --             |
| 1984-86      | NA             | NA           | .18                  | .17              | -.01           |
| 1990         | NA             | NA           | .26                  | .25              | -.01           |
| Total 4/     |                |              |                      |                  |                |
| 1974-76      | 27.62          | .50          | 13.97                | 13.66            | -.11           |
| 1984-86      | 30.41          | .59          | 18.16                | 18.12            | -.04           |
| 1990         | 32.50          | .68          | 22.43                | 22.34            | -.07           |

-- = None or negligible, NA = Not available.

1/ Commodity coverage includes copra, cottonseed, flaxseed, nigerseed, peanuts, rapeseed, safflower, sesame, soybean, and sunflower. Supply and use may not balance because of stock adjustments. 2/ 1984-86 average production is significantly below the 1985 trend value of about 2.3 million tons because of abnormally low cottonseed production in 1984. 3/ 1984-86 average production is significantly below the 1985 trend value of about 220,000 tons because of abnormally low copra production in 1984. 4/ Area and yield totals exclude Sri Lanka.

SOURCE: USDA data and ERS projections.

accounts for 90 percent of oilseed production and 70 percent of the oil produced, appears to offer little scope for rapid gains without major investment in the development and introduction of nontraditional oilseeds. In addition, government policies have not improved oilseed producer incentives to induce area shifts towards oilseeds or adoption of new technologies. Low world oil prices are expected to reduce government incentives to invest in oilseed development and to boost domestic prices for oilseeds and products. As a result, growth in domestic oilseed and oil production will be largely constrained to gains that can be achieved in cotton production.

Growth in oilseed production is also projected to remain sluggish in Bangladesh as

limited government resources remain focused on improving food grain self-sufficiency, and lower world edible oil prices reduce the cost of this strategy. Stronger growth is projected for Sri Lankan copra production as policies seek to diversify agricultural production and expand export earnings from copra, coconut oil, and other tree crop products.

The region's trade in oilseeds is projected to remain negligible over the next 5 years. The inland location of most oilseed processing facilities in India and Pakistan, coupled with weak effective demand for oilmeals, currently makes oil imports more economical than oilseed imports. However, future investments in coastal processing facilities may lead to some substitution of oilseed imports for oil imports. The region's exports of oilseeds, consisting primarily of small amounts of Indian confectionary peanuts and Sri Lankan copra, are not expected to rise significantly. High internal prices will continue to hamper Indian peanut exports and Sri Lanka will likely focus on exports of value-added copra products.

#### *Modest Decline in Edible Oil Import Demand Projected*

The region's average annual imports of edible oils are projected to decline from 2.3 million tons during 1984-86 to about 2.2 million by 1990, with smaller Indian imports accounting for the decline. Indian imports are projected to fall to an average of 1.1 million tons annually by 1990 because of production gains, and because regulatory policies are expected to curb growth in use of imported oils, particularly by the vanaspati industry. Relatively high growth in domestic consumption in 1984 and 1985 because of abnormally large imports is not expected to be sustained.

Pakistani edible oil imports are projected to continue to rise, reaching an average of nearly 900,000 tons by 1990. Only limited gains are projected in domestic production from cottonseed, and low world vegetable oil prices are expected to help maintain consumer-oriented pricing policies. However, the rapid growth rate of domestic consumption and imports observed between 1974-76 and 1984-86 is unlikely to be sustained because of somewhat slower growth in per capita incomes and the relatively high levels of per capita use already achieved.



Table 15--Historical and projected supply and use of vegetable oils in South Asia 1/

| Country      | Production         | Consumption |            | Imports    |
|--------------|--------------------|-------------|------------|------------|
|              |                    | Total       | Per capita |            |
|              | --- 1,000 tons --- |             | Kgs.       | 1,000 tons |
| Bangladesh   |                    |             |            |            |
| 1974-76      | 51                 | 130         | 1.7        | 79         |
| 1984-86      | 57                 | 228         | 2.3        | 202        |
| 1990         | 59                 | 264         | 2.4        | 205        |
| India        |                    |             |            |            |
| 1974-76      | 2,670              | 2,768       | 4.6        | 98         |
| 1984-86      | 3,555              | 4,939       | 6.6        | 1,401      |
| 1990         | 4,371              | 5,508       | 6.6        | 1,136      |
| Pakistan 2/  |                    |             |            |            |
| 1974-76      | 198                | 394         | 5.4        | 196        |
| 1984-86      | 273                | 966         | 9.9        | 692        |
| 1990         | 359                | 1,226       | 10.8       | 867        |
| Sri Lanka 3/ |                    |             |            |            |
| 1974-76      | 95                 | 45          | 3.4        | -50        |
| 1984-86      | 102                | 62          | 3.9        | -41        |
| 1990         | 155                | 80          | 4.6        | -75        |
| Total        |                    |             |            |            |
| 1974-76      | 3,014              | 3,337       | 4.4        | 323        |
| 1984-86      | 3,987              | 6,195       | 6.4        | 2,254      |
| 1990         | 4,944              | 7,078       | 6.6        | 2,133      |

1/ Commodity coverage includes copra, cottonseed, flaxseed, nigerseed, peanuts, rapeseed, safflower, sesame, soybean, and sunflower. Supply and use may not balance because of stock adjustments. 2/ 1984-86 average production is significantly below the 1985 trend value of about 295,000 tons because of abnormally poor cottonseed oil production in 1984. 3/ 1984-86 average production is significantly below the 1985 trend value of about 125,000 tons because of abnormally low copra production in 1984.

SOURCE: USDA data and ERS projections.

Bangladesh's edible oil imports are not projected to show any substantial growth from the relatively high levels observed during 1984-86, years when large stocks were accumulated. Scarce foreign exchange is likely to be reallocated to higher priority imports. Gains in domestic production, coupled with competitive prices and export expansion efforts, are expected to boost Sri Lankan coconut oil exports through 1990.

Prospects for soybean oil sales in South Asia will be affected by a gradual decline in edible oil import demand, as well as continued strong competition from growing supplies of Malaysian palm oil. The soybean oil share of the region's imports fell from 50 percent (187,000 tons) during 1974-76 to about 33

percent (764,000 tons) in 1984-86, primarily because of lower relative palm oil prices. If palm oil remains cheaper, the market share for soybean oil may continue to decline to 25-30 percent (550,000-650,000 tons) by 1990, particularly if Indian import demand continues to shift towards palm and other oils that can be used for sale through the PDS. U.S. exports of soybean oil accounted for about 44 percent (338,000 tons) of the region's soybean oil imports during 1984-86, and could fall to 240,000-290,000 tons by 1990 even if this market share is maintained through a combination of concessional and credit programs.

## COTTON SECTOR DEVELOPMENTS AND OUTLOOK

### Overview

#### *Record Harvests*

#### *Boost Exports in 1985/86*

India and Pakistan's 1985/86 cotton harvests eclipsed their 1984/85 records by 6 percent and 23 percent, respectively, glutting markets in each country, and boosting both exports and stocks. While good weather and increased plantings contributed to the larger crops, higher yields resulting from the adoption of improved varieties and cultivation practices were the primary factors. Government support prices of 34 cents/lb. for improved varieties in Pakistan and averaging near that level in India have trended down in real terms and appear to have played a minor role in stimulating higher production.

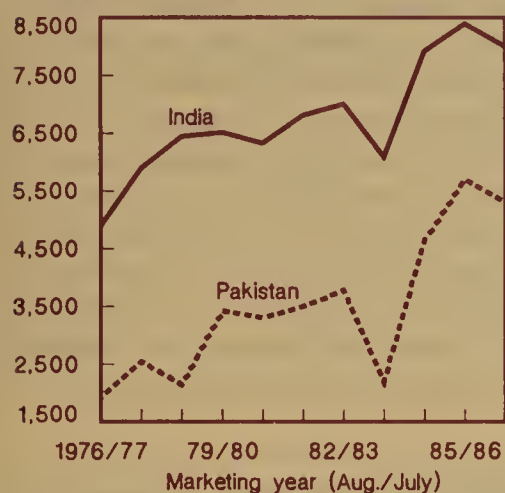
Although domestic cotton mills benefited from low raw material prices, mill demand remained sluggish, in part, because of stiff competition in world textile markets. Faced with record supplies, and aided by highly competitive prices and lack of U.S. competition, Pakistan exported an estimated record of 3.0 million bales of cotton in 1985/86 (August/July), and emerged, along with the Soviet Union, as the world's largest exporter. Indian exports also rose, but were hampered by policies that prevented competitive pricing. Both India and Pakistan built record stocks, and public procurement agencies in each country incurred large financial losses. Imports by Bangladesh, the region's only traditional importer, fell because of high stocks and slumping mill demand.



## Cotton

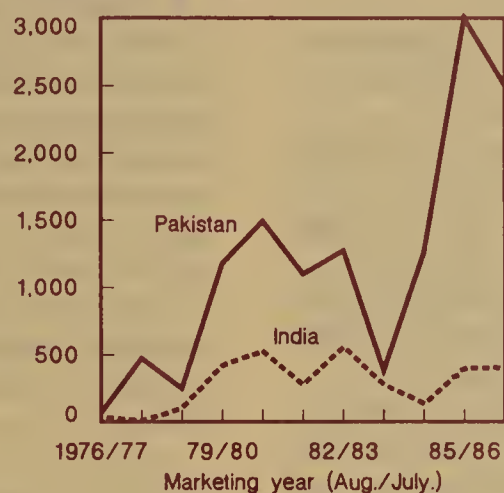
### Production

Thousand 480-lb bales



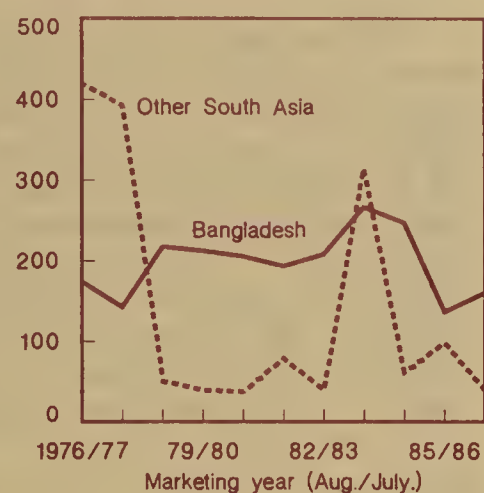
### Exports

Thousand 480-lb bales



### Imports

Thousand 480-lb bales



### Smaller Harvests and Exports Forecast for 1986/87

Weakening prices are forecast to reduce cotton area and production in India and Pakistan in 1986/87, and the reemergence of competitively-priced U.S. cotton is expected to push down Pakistan's exports. Early reports indicate that area reductions have occurred, but generally favorable weather and increased use of inputs and improved varieties should benefit yields, particularly in Pakistan where most of the crop is irrigated. While some strengthening of domestic and foreign textile demand is expected to boost mill use in India and Pakistan, both countries will be faced with record exportable surpluses of raw cotton, low domestic prices, and mounting procurement and storage costs.

Pakistan's exports of medium- and long-staple cotton are forecast to fall to about 2.5 million bales in 1986/87 as U.S. cotton regains market share, while India's exports, primarily of extra-long staple varieties, are likely to be unchanged. However, both India and Pakistan may opt for export pricing adjustments to enhance competitiveness, particularly in view of rising storage costs and large trade deficits.

### Sustained High Exports Projected Through 1990

Although recent advances in production technology in the region and prospects for depressed cotton prices create great

Table 16—Supply and use of cotton in India and Pakistan (August/July)

| Year         | Area      | Yield    | Production          | Imports | Exports | Consumption 1/ | Ending stocks |
|--------------|-----------|----------|---------------------|---------|---------|----------------|---------------|
|              | 1,000 ha. | Kgs./ha. | 1,000 480-lb. bales |         |         |                |               |
| India        |           |          |                     |         |         |                |               |
| 1982/83      | 7,871     | 194      | 7,004               | 0       | 557     | 6,383          | 2,184         |
| 1983/84      | 7,765     | 171      | 6,086               | 0       | 276     | 6,614          | 1,380         |
| 1984/85      | 7,437     | 232      | 7,925               | 0       | 132     | 7,117          | 2,056         |
| 1985/86 est. | 7,900     | 232      | 8,400               | 59      | 400     | 7,155          | 2,960         |
| 1986/87 for. | 7,700     | 226      | 8,000               | 0       | 400     | 7,400          | 3,160         |
| Pakistan     |           |          |                     |         |         |                |               |
| 1981/82      | 2,215     | 343      | 3,494               | 5       | 1,097   | 2,396          | 241           |
| 1982/83      | 2,263     | 364      | 3,781               | 4       | 1,273   | 2,600          | 153           |
| 1983/84      | 2,221     | 214      | 2,188               | 279     | 377     | 2,150          | 93            |
| 1984/85      | 2,236     | 451      | 4,628               | 26      | 1,261   | 2,436          | 1,050         |
| 1985/86 est. | 2,366     | 525      | 5,700               | 4       | 3,000   | 2,510          | 1,244         |
| 1986/87 for. | 2,235     | 516      | 5,300               | 4       | 2,500   | 2,665          | 1,383         |

1/ Includes losses.

SOURCES: Official government data in each country; USDA estimates.

uncertainty in the 5-year outlook, current projections indicate further growth in production and a sustained high level of exports through 1990. Improved yields and likely declines in unit costs of production are projected to lead to steady gains in production, particularly in Pakistan. The gains are expected to be only partially offset by stronger growth in domestic mill demand, as undercapitalization in the mill sector, stiff foreign competition, and quota restrictions impede the expansion of textile exports.

To reduce high current stocks, both India and Pakistan will likely seek to expand cotton exports over the next few years. By 1990, Pakistan's annual cotton exports are projected to average near 3 million bales, while India's exports fall to an average of 100,000 bales. But, strong potential for productivity gains and highly competitive prices could lead to substantially higher levels of production and exports, particularly in Pakistan.



## Bangladesh

### *Cotton Use and Imports Slump*

Bangladesh's cotton imports dropped 45 percent to about 136,000 bales in 1985/86. The decline was caused by high stocks following 2 years of relatively large imports, and a severe slump in cotton demand by Bangladesh's public sector mills. Mill demand fell because of leakage into the domestic market of cheap, duty-free shipments of yarn, cloth, and partially-made garments that were supposed to be processed and reexported. Despite the drop in imports, stocks of raw cotton remained large and mills accumulated inventories of domestically produced yarn and cloth.

Cotton imports are forecast to recover to about 160,000 bales in 1986/87 as revised customs regulations halt the flow of duty-free imports into the domestic market, and enlarged quotas for textile exports to the United States boost mill demand. However, continued high stocks of cotton, yarn, and cloth will likely prevent a stronger increase in imports. The U.S. share of Bangladesh's cotton imports fell from 43 percent (104,000 bales) in 1984/85 (August/July) to about 7 percent (10,000 bales) in 1985/86 because of competition from Pakistan, Sudan, and the Soviet Union. Larger sales through the P.L. 480 program are forecast to improve the U.S. market share to about 40 percent (65,000 bales) in 1986/87.

## India

### *Another Record Crop Creates Cotton Glut*

India's 1985/86 cotton harvest is estimated at 8.4 million bales (480-lbs. each), 6 percent above the 1984/85 record, primarily because good weather and the availability of more profitable, hybrid varieties contributed to larger plantings. Although there was dry weather in some areas, yield remained near the 1984/85 record, which was 20 percent above the previous record. Increased use of new varieties, fertilizer, and plant protection measures, as well as dry midseason weather that minimized pest and disease losses, helped maintain record-matching yields. Yields were also reportedly higher on the 30 percent of cotton area that is irrigated because of improved supplies of canal water.

Maharashtra remained the largest producing state, with farmers there benefiting from a monopoly procurement scheme that sets its minimum prices 10-15 percent higher than government-established support prices. Government support prices for seed cotton were adjusted in 1985/86 to increase incentives for medium-staple cottons that were in relatively short supply and ranged, according to staple length, between Rs 3,400 (\$279) and Rs 9,000 (\$738) per ton. The bulk of the production gains in 1985/86 were in medium staple cottons, correcting a varietal imbalance that had emerged over the last several years.

The second consecutive bumper harvest led to an abrupt decline in domestic cotton prices. Wholesale prices of cotton averaged 18 percent lower in real terms during the first 7 months of 1986 than a year earlier, with medium staple varieties absorbing the bulk of the decline. Although mills benefited from more liberal regulatory policies and lower raw material prices, mill use was constrained by a weak world textile market and increased only marginally following a large gain in 1984/85. As market prices fell below support levels, public procurement agencies bought record quantities of cotton. They incurred large financial losses by carrying record inventories and reselling cotton to domestic mills below cost.

To reduce the surplus, the Government released an 800,000-bale export quota for long- and extra-long staple cottons in early 1986, allowing public agencies to export 600,000 bales subject to established minimum export prices, and private traders to export 200,000 bales without price restrictions. However, stiff world competition, the late announcement of the quota, and the relatively high minimum export prices held exports well below the quota. Exports during 1985/86 (August/July) are estimated at about 400,000 bales. Total cotton stocks rose sharply for the second consecutive year and reached an estimated 3.0 million bales, compared with a desired stock level of about 1.8 million.

### *Oversupply Likely To Persist in 1986/87*

Cotton production is forecast to fall about 5 percent to 8 million bales in 1986/87, but the domestic cotton glut is likely to



worsen because of inadequate growth in mill demand and exports. Although early season rainfall has been good in major producing areas, reduced cotton plantings are expected because of weakening price incentives. Area reductions are expected in Maharashtra as financial losses force the guaranteed monopoly procurement prices down to the government support level, and in Gujarat, where large unsold stocks prompt area shifts towards oilseeds and sugarcane. However, yield is forecast to remain high if rainfall remains normal, because of more use of improved varieties and good irrigation water supplies.

Mill use of cotton is forecast to expand more than 3 percent in 1986/87 because of low raw cotton prices and some strengthening of domestic and foreign textile demand. In addition, the textile industry is expected to begin to respond to a package of new textile sector policies announced in 1985 that have substantially brightened the long-term outlook for the industry. The new policies, including more flexibility in adjusting product lines and fiber use, modernization incentives, excise taxation reforms, and more liberal imports of modern equipment, are aimed at enhancing supplies of low-priced cloth for the domestic market, as well as the export-competitiveness of India's textile industry.

Cotton exports, consisting primarily of superior long staple varieties, are forecast to remain at 400,000 bales, assuming that public agencies must continue to adhere to currently established minimum export prices. The export pricing policy is intended to prevent competition among exporters from driving down domestic prices, but currently forces exporters to export at higher prices than those prevailing in the domestic market. A possible relaxation of this policy, in view of the mounting costs of carrying surplus stocks, could make India's long- and extra-long staple cottons more competitive in world markets.

### **Pakistan**

#### *Cotton Output Surges to Another Record in 1985/86*

Pakistani cotton production surged to a record 5.7 million bales (480-lbs. each) in

1985/86, 23 percent above the previous record in 1984/85. Area was up 6 percent, but the bulk of the gain resulted from another large improvement in yield. Plantings and yields were boosted by excellent weather, availability of improved varieties, and increased use of fertilizer and plant protection measures. A key factor in recent yield gains has been the introduction of NIAB-78, a new, early-maturing cotton with twice the yield potential of previous varieties. NIAB-78 was introduced in the major producing state of Punjab in 1983. It currently covers about half of the cotton area in Punjab and is spreading into the neighboring state of Sind.

Higher domestic market prices for cotton following the poor 1983/84 crop probably influenced the production rebound in 1984/85. However, government price incentives appear to have played only a minor role in recent production gains. The support price for improved varieties of cotton was raised less than 3 percent in nominal terms in 1985/86, compared with 8 percent for high-yielding rice and 21 percent for sugarcane, the two principal competing crops. And, since 1981/82, the cotton support price was raised a total of 9.4 percent in nominal terms, compared with 18 percent for rice and 21 percent for sugarcane. During the same period, fertilizer prices were raised an average of 32 percent.

#### *Cotton Exports Soar to World High*

Record supplies, sluggish domestic demand, and highly competitive export prices helped boost Pakistan's cotton exports to an estimated 3.0 million bales in 1985/86 (August/July), more than double the previous record, making Pakistan and the Soviet Union the world's largest exporters. Domestic demand continued to be constrained by financial problems in the mill sector, overseas quota restrictions on textile and garment imports, and weak foreign demand for cloth. Mills were apparently also affected by competition from the Cotton Export Corporation (CEC), which buoyed internal prices by buying record amounts of cotton in the domestic market. In addition, the CEC exported some cottons at lower average prices than prevailed in the domestic market, hampering the competitiveness of Pakistani textile and yarn exports.



Because of aggressive marketing by the CEC, and lack of competition from over-priced U.S. cotton, Pakistani cotton achieved large increases in market share in Taiwan, Hong Kong, Japan, and South Korea. Although unit values were off about 25 percent, the large increase in volume more than doubled cotton export earnings. Cotton export receipts reached nearly \$500 million, 20 percent of total exports in 1985/86, and were the major factor in Pakistan's improved balance of payments situation during the year. The average export price was 37 cents/lb., compared with 49 cents in 1984/85 and 61 cents in 1983/84. Losses incurred by the CEC in carrying large stocks and exporting some cotton at below cost are estimated at about \$135 million in 1985/86, compared with actual losses of \$85 million in 1984/85 and \$132 million in 1983/84. Despite the record export performance, yearend stocks of cotton climbed to a record 1.2 million bales, posing major storage and financial problems.

#### *Smaller Cotton Crop Forecast for 1986/87*

The dramatic increases in yields achieved in the last 2 years, driven largely by the adoption of new technology, create great uncertainty in forecasting the 1986/87 harvest. The 1986/87 crop is forecast to fall to about 5.3 million bales, although Pakistani authorities have forecast the crop in the range

Table 17--Pakistan's estimated exports of cotton by country of destination, (August/July)

| Country     | 1982/83             | 1983/84 | 1984/85 | 1985/86  |
|-------------|---------------------|---------|---------|----------|
|             | 1,000 480-lb. bales |         |         |          |
| Bangladesh  | 98                  | --      | 52      | 60       |
| China       | 479                 | 5       | --      | --       |
| Hong Kong   | 112                 | 40      | 179     | 300      |
| Indonesia   | 33                  | --      | 51      | 150      |
| Italy       | 24                  | 5       | 45      | 125      |
| Japan       | 196                 | 159     | 253     | 400      |
| South Korea | 40                  | 15      | 45      | 190      |
| Taiwan      | --                  | 10      | 157     | 450      |
| Other       | 29                  | 98      | 479 1/  | 1,325 2/ |
| Total       | 1,273               | 377     | 1,261   | 3,000    |

1/ Including 69,000 bales to Belgium and 70,000 bales to Thailand. 2/ Including 125,000 bales to West Germany, 100,000 bales to Belgium, 200,000 bales to Eastern Europe, and 150,000 bales to Thailand.

SOURCE: USDA estimates.

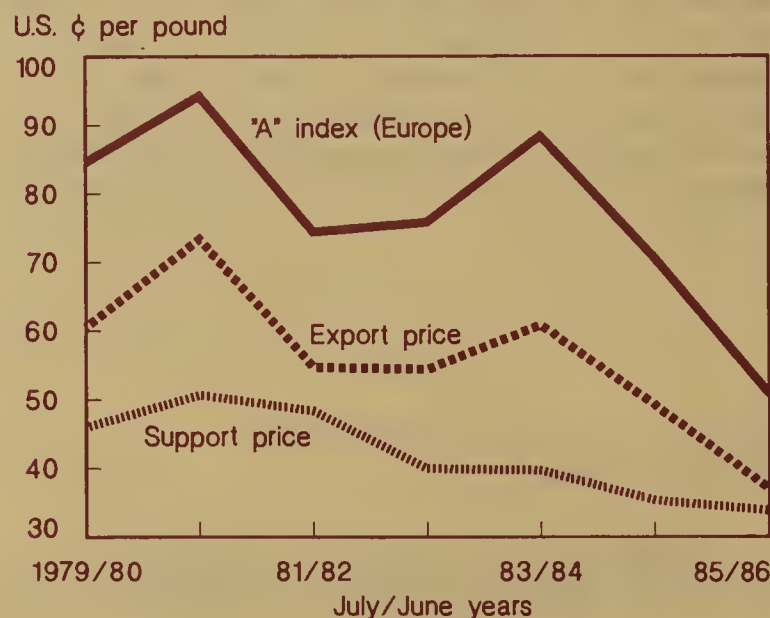
of 5.8–6.2 million bales. The current forecast is based on the expectation that strengthening rice and sugarcane prices and unchanged cotton support prices will reduce cotton area, and that less favorable weather in some areas will prevent further growth in yields. Both rice and sugarcane plantings are reported to be higher than last year, so a decline in cotton area is likely. However, yields could be higher than the current forecast because of good supplies of irrigation water following ample winter rains, and because of further increases in area planted to NIAB-78.

#### *Competition Expected To Reduce Exports in 1986/87*

Pakistan's cotton exports are forecast to drop to about 2.5 million bales in 1986/87, primarily because of the presence of large supplies of competitively-priced, high-quality U.S. cotton. Sharply lower U.S. prices are expected to prevent Pakistan from maintaining its 1985/86 market share, particularly in traditional U.S. markets in Asia, unless the Government is willing to allow the CEC to sustain substantially higher losses in its export operations. In addition, CEC procurement of cotton could be reduced to ease domestic prices and enhance the competitiveness of value-added exports of textiles and yarns.

Two additional factors contribute to uncertainty in forecasting Pakistan's 1986/87 cotton exports. Pakistani cotton prices may become even more competitive in dollar terms

#### **Pakistan: Domestic and Foreign Cotton Prices**





in 1986/87 if the Government continues its policy of slowly depreciating the rupee against the dollar to help narrow the trade deficit. Also, the Government may opt to spend rupees in the form of export subsidies to earn much needed foreign exchange, particularly since storage costs and losses are likely to rise substantially if exports fall.

### Five-Year Outlook for Cotton

#### *Further Expansion of Cotton Production Projected*

Production and trade projections for the region's cotton sectors are subject to great uncertainty because of sharply above-trend gains in yields in recent years, stiff competition and low prices in the world cotton market, and uncertainty about growth in the region's exports of cotton yarns, textiles, and garments. Large stocks and weak domestic prices, particularly over the next several years, are expected to induce area shifts towards such crops as oilseeds and pulses in India, and towards rice and possibly oilseeds in Pakistan. However, average cotton yields remain well below their potential, particularly in Pakistan where the bulk of the crop is irrigated. Increased use of improved varieties and modern cultural practices are expected to

lead to further gains in productivity. Less growth in yields is expected in India because only 30 percent of the crop is irrigated and yields are likely to remain low and unstable on unirrigated land.

Annual average cotton production in India is projected to rise from 8.1 million bales during 1984-86 to about 8.5 million by 1990, while Pakistani production is projected to rise from 5.2 million bales to nearly 5.9 million. However, rapid growth in productivity through the use of improved technology during the last 3 years has occurred in spite of producer prices that were generally declining in real terms, implying possible reductions in unit costs of production. If this is the case, substantially faster gains in production are possible, even in the face of a continued decline in real producer prices.

#### *Region's Net Exports of Cotton Projected Higher*

Gains in production, high current stocks, and stiff competition in global textile markets are projected to boost the region's cotton exports, primarily by Pakistan, from an annual average of 2.5 million bales in 1984-86 to about 3.0 million by 1990. Although India, Pakistan, and Bangladesh will seek to expand their production and exports of value-added items, and stronger growth in domestic use is projected, rapid gains in domestic mill use are unlikely. Key constraints will be the large investments needed to modernize textile mills, and the enhanced competitiveness of traditional East Asian exporters because of low raw material prices, as well as global quota restrictions.

Pakistan's exports are projected to average 2.9 million bales by 1990, as production gains swamp growth in domestic use and its prices remain highly competitive in world markets. Although huge stocks may lead to larger exports over the next several years, India's average annual exports are projected to fall to about 100,000 bales by 1990, as the Government promotes both production adjustments and expansion of textile production and exports. Bangladesh's cotton imports are projected to rise to about 250,000 bales annually by 1990, with severe financial constraints in the mill sector and scarcity of foreign exchange preventing

Table 18—Historical and projected supply and use of cotton in South Asia 1/

| Country    | Area      | Yield    | Production | Consumption 2/ | Net exports |
|------------|-----------|----------|------------|----------------|-------------|
|            | 1,000 ha. | Kgs./ha. | 1,000      | 480-lb. bales  |             |
| Bangladesh |           |          |            |                |             |
| 1974-76    | 6         | 181      | 5          | 188            | -170        |
| 1984-86    | 13        | 218      | 13         | 202            | -178        |
| 1990       | 20        | 244      | 22         | 270            | -250        |
| India      |           |          |            |                |             |
| 1974-76    | 7,266     | 164      | 5,470      | 5,962          | -64         |
| 1984-86    | 7,679     | 230      | 8,108      | 7,224          | 291         |
| 1990       | 7,700     | 240      | 8,500      | 8,360          | 100         |
| Pakistan   |           |          |            |                |             |
| 1974-76    | 1,916     | 265      | 2,331      | 1,968          | 513         |
| 1984-86    | 2,279     | 498      | 5,209      | 2,537          | 2,242       |
| 1990       | 2,250     | 567      | 5,860      | 3,050          | 2,900       |
| Total      |           |          |            |                |             |
| 1974-76    | 9,188     | 185      | 7,806      | 8,118          | 279         |
| 1984-86    | 9,971     | 291      | 13,330     | 9,963          | 2,355       |
| 1990       | 9,975     | 314      | 14,382     | 11,680         | 2,750       |

1/ Supply and use may not balance because of stock adjustments. 2/ Includes losses.

SOURCES: USDA data and ERS projections.



stronger growth in import demand. Stiff price competition from Pakistan and China will likely require the continued use of concessional programs for U.S. cotton to maintain its market share in Bangladesh.

## SUGAR DEVELOPMENTS AND OUTLOOK

### Overview

#### *Policies Aim at Ending Sugar Imports*

Slumps in sugarcane and sugar production led India and Pakistan, both traditional nonimporters, to import larger amounts of sugar to maintain consumer price stability in 1985/86. Production setbacks were caused by poor weather and weakening open-market sugar prices following periods of substantially improved domestic supplies. India's sugar sector showed signs of a revival in 1985/86 in response to measures to strengthen incentives over the last 2 years, and a sharp drop in Pakistani production prompted large producer price increases to stimulate a recovery in 1986/87.

Production in both countries is expected to respond to strengthened incentives in 1986/87, with output forecast to rise 14 percent in India and nearly 25 percent in Pakistan if weather remains normal. India's import needs are expected to drop about 60 percent in 1986/87, while Pakistan's imports fall to zero. Longer-term goals in both India and Pakistan are to maintain either self-sufficiency or export positions in sugar, and further policy adjustments are likely to improve stability and growth in the sector.

### India

#### *Indian Sugar Production Begins Recovery in 1985/86*

After becoming the world's largest sugar producer in 1981/82 and 1982/83, with annual production averaging 9.6 million tons, output plunged 26 percent to an average of 7.1 million tons in 1983/84-1984/85. The drop was caused by falling domestic sugarcane prices, severe financial problems in the mill sector that held up payments to cane growers, and unfavorable weather. During 1985/86, partial data indicate a production recovery of 8

Table 19--Supply and use of sugar in India and Pakistan

|              | Production             | Imports | Exports | Consumption |            | Ending stocks |
|--------------|------------------------|---------|---------|-------------|------------|---------------|
|              |                        |         |         | Total       | Per capita |               |
|              | ----- 1,000 tons ----- |         |         |             | Kgs.       | 1,000 tons    |
| India        |                        |         |         |             |            |               |
| 1982/83      | 9,508                  | 0       | 441     | 7,622       | 10.6       | 4,999         |
| 1983/84      | 7,042                  | 81      | 765     | 8,900       | 12.1       | 2,457         |
| 1984/85      | 7,071                  | 1,239   | 20      | 9,116       | 12.2       | 1,631         |
| 1985/86 est. | 7,663                  | 2,000   | 24      | 9,470       | 12.4       | 1,800         |
| 1986/87 for. | 8,730                  | 800     | 20      | 9,800       | 12.5       | 1,510         |
| Pakistan     |                        |         |         |             |            |               |
| 1982/83      | 1,197                  | 5       | 0       | 1,155       | 12.5       | 525           |
| 1983/84      | 1,219                  | 0       | 50      | 1,215       | 12.8       | 479           |
| 1984/85      | 1,395                  | 0       | 0       | 1,380       | 14.2       | 494           |
| 1985/86 est. | 1,122                  | 318     | 0       | 1,494       | 14.9       | 440           |
| 1986/87 for. | 1,395                  | 0       | 0       | 1,555       | 15.0       | 280           |

SOURCES: Official government data in each country; Attache estimates.

percent or more, in response to strengthened price supports, regulatory adjustments to improve the financial viability of mills, and favorable weather in some cane-producing areas.

India, a traditional sugar exporter, was an importer during 1984/85 and 1985/86, as the Government imported about 3.3 million tons to offset production losses, maintain stable real consumer prices, and sustain growth in per capita sugar use. Despite the modest production recovery in 1985/86, imports climbed to an estimated record of 2 million tons during 1985/86 (October/September) to sustain consumption growth and rebuild depleted stocks.

#### *Sugar Imports Forecast To Fall in 1986/87*

Good weather in cane-producing areas of northern and south central India, further increases in producer price supports, and the maturation of cane planted in 1985/86 in response to higher prices, are forecast to boost sugar production 14 percent to about 8.7 million tons in 1986/87. Production response could be higher because of good weather and weakening relative prices for competing crops, as well as improved financial incentives for mills to expand their normal crushing season. With the current production forecast, sugar imports of about 800,000 tons, 60 percent below 1985/86, will likely be needed to maintain consumer price stability in 1986/87. However, the Government intends to reestablish a net export position as quickly as possible, and currently plans to import no sugar in 1986/87.



## Pakistan

### *Production Decline Leads to Imports in 1985/86*

Pakistan's production of sugarcane and sugar fell 17 percent and 20 percent, respectively, in 1985/86. Poor supplies of irrigation water during May-June 1985, coupled with deteriorating producer price incentives, led to a decline in both area and yield of sugarcane. To prevent a sharp rise in consumer prices, the Government permitted private traders to import sugar subject to a reduced import duty of Rs 4,000 (\$261) per ton. Total sugar imports by Pakistan, which is normally self-sufficient, are estimated at 318,000 tons in 1985/86 (October/September).

### *Production Recovery Forecast for 1986/87*

To help stimulate a recovery in sugar production in 1986/87, the Government announced the first increase in the sugarcane support price in 5 years. Provincial support prices were raised an average of 21 percent, and quality premiums on sucrose content were raised 27 percent. Higher sugarcane support prices, coupled with improved supplies of canal water and weakening prices for competing crops, particularly cotton and wheat, are forecast to lead to a recovery in sugarcane and sugar production in 1986/87. Cane production is forecast to rise 20 percent and be of higher quality, leading to nearly a 25-percent recovery in sugar production. As a result, sugar imports are expected to be nil in 1986/87.

## U.S. AGRICULTURAL TRADE DEVELOPMENTS AND OUTLOOK

### *Weak Outlook for U.S. Farm Exports to South Asia*

U.S. farm exports to South Asia fell about 13 percent to an estimated \$523 million in U.S. fiscal 1986, the fourth consecutive year of decline. Smaller purchases by Bangladesh and India more than offset larger wheat and soybean oil sales to Pakistan. As in the previous 3 years, the region's major imports from the United States--wheat, soybean oil, and inedible tallow--declined in value. Small

volume increases for these commodities because of increased Pakistani buying were more than offset by lower prices. Both volume and price declines occurred for most other items shipped to the region in significant quantities, including nonfat dry milk, rice, and cotton.

Key factors driving down U.S. farm exports to the region have been improved local supplies of food grains and stiffening competition for sales of wheat, soybean oil, and cotton. During fiscal 1986, U.S. concessional and credit export programs played an increasingly important role in maintaining U.S. market share, accounting for an estimated 75 percent of U.S. farm exports to the region. Available data indicate that the P.L. 480, Title I and Title II programs accounted for about 28 percent and 22 percent, respectively, of the total value of shipments. Sales through the GSM-102 credit guarantee program accounted for about 22 percent, and initiatives under the Export Enhancement Program (EEP) contributed about 3 percent. In addition, a substantial portion of the remaining 25 percent was purchased by Pakistan using grants and loans provided by the Agency for International Development through the Development Assistance and Economic Support Fund programs.

U.S. farm exports to South Asia in fiscal 1987 are projected to decline 20 percent to about \$414 million. A sharp drop in Pakistan's wheat import requirements and a further decline in commodity prices are expected to account for the decline, more than offsetting

Table 20--Total U.S. agricultural exports to South Asia (U.S. fiscal years)

|                 | 1983    | 1984  | 1985  | 1986<br>est. | 1987<br>for. |
|-----------------|---------|-------|-------|--------------|--------------|
| Million dollars |         |       |       |              |              |
| Afghanistan     | .1      | --    | --    | --           | --           |
| Bangladesh      | 153.2   | 157.1 | 205.4 | 96.4         | 99.2         |
| India           | 762.1   | 375.6 | 129.4 | 101.5        | 98.0         |
| Nepal           | 2.5     | 2.6   | 2.6   | 3.2          | 3.3          |
| Pakistan        | 214.8   | 285.4 | 229.0 | 283.6        | 174.3        |
| Sri Lanka       | 37.0    | 46.3  | 33.9  | 38.3         | 38.9         |
| Total           | 1,169.7 | 867.0 | 600.3 | 523.0        | 413.7        |

-- = less than \$50,000.

SOURCES: U.S. Department of Commerce, Bureau of the Census; ERS estimates.



projected increases in wheat volume to Bangladesh and Sri Lanka, and in soybean oil volume to Pakistan. If P.L. 480 programs in the region remain at current funding levels, they will account for about 60 percent of total shipments, and further use of concessional and credit programs may be needed to achieve the projected level of total exports.

### Wheat

U.S. wheat exports to South Asia are projected to fall 25 percent from an estimated 1.9 million tons in fiscal 1986 to about 1.4 million in fiscal 1987. Exports to Pakistan are expected to drop from 950,000 tons in fiscal 1986 to only about 250,000 tons provided through the Afghan Refugee Relief Program, because of record domestic production and stocks.

The decline in exports to Pakistan in fiscal 1987 is expected to be partially offset by larger wheat imports by Bangladesh and Sri Lanka, both traditional U.S. markets. Larger volumes of lower-priced U.S. wheat are expected to be shipped to these countries under existing P.L. 480 programs if funding levels are maintained. However, Canada, Australia, and the EC are also traditional competitors in these markets and further use of the GSM-102 and EEP programs may be needed to achieve currently projected levels of U.S. shipments. India's huge wheat surplus will continue to preclude additional purchases of U.S. wheat, although exports of wheat to India under P.L. 480, Title II programs are expected to continue.

Table 21--U.S. exports of wheat and products to South Asia (U.S. fiscal years)

|            | 1983       | 1984  | 1985  | 1986<br>est. | 1987<br>for. |
|------------|------------|-------|-------|--------------|--------------|
|            | 1,000 tons |       |       |              |              |
| Bangladesh | 803        | 600   | 1,073 | 575          | 700          |
| India      | 4,084      | 1,189 | 149   | 150          | 150          |
| Nepal      | 8          | 4     | 1     | 1            | 1            |
| Pakistan   | 280        | 174   | 451   | 950          | 250          |
| Sri Lanka  | 214        | 269   | 173   | 250          | 300          |
| Total      | 5,389      | 2,236 | 1,847 | 1,926        | 1,401        |

SOURCES: U.S. Department of Commerce, Bureau of the Census; ERS estimates.

### Soybean Oil

Sales of soybean oil to the region are projected to rise from an estimated 297,000 tons in fiscal 1986 to about 320,000 in fiscal 1987 because of increased purchases of U.S. soybean oil by Pakistan. Both India and Pakistan are forecast to have larger edible oil import requirements in 1986/87, but Malaysian palm oil is expected to maintain a substantial price advantage in the South Asian market and prevent any significant recovery in the region's demand for soybean oil. U.S. soybean oil exports to Pakistan are projected to increase to about 250,000 tons, and continue to account for virtually all of Pakistan's soybean oil purchases, because larger quantities of lower-priced U.S. soybean oil will be possible if current P.L. 480 and GSM-102 funding levels are maintained.

No growth is projected in soybean oil sales to India, despite the outlook for larger total soybean oil imports, because of continued competition from Brazil. Brazilian soybean oil has dominated the Indian market since the early 1980's because India is primarily a cash buyer and the Brazilian product has enjoyed a consistent price advantage. U.S. soybean oil exports to India are forecast to be unchanged from a year earlier at about 50,000 tons, with the bulk provided under the P.L. 480, Title II program. However, a shortfall in Brazilian supplies or initiatives under the EEP program could lead to larger sales. U.S. exports to Bangladesh are forecast to rise to about 20,000 tons if current P.L. 480 funding levels are maintained, but large stocks and stiff competition from

Table 22--U.S. exports of soybean oil to South Asia (U.S. fiscal years)

|            | 1983       | 1984  | 1985  | 1986<br>est. | 1987<br>for. |
|------------|------------|-------|-------|--------------|--------------|
|            | 1,000 tons |       |       |              |              |
| Bangladesh | 23.7       | 14.9  | 14.3  | 16.0         | 20.0         |
| India      | 55.0       | 170.2 | 62.8  | 50.0         | 50.0         |
| Nepal      | .0         | .1    | .1    | .2           | .1           |
| Pakistan   | 236.7      | 216.1 | 168.4 | 230.0        | 250.0        |
| Sri Lanka  | 1.0        | .9    | .4    | .5           | .6           |
| Total      | 316.4      | 402.2 | 246.0 | 296.6        | 320.7        |

SOURCES: U.S. Department of Commerce, Bureau of the Census; ERS estimates.



Malaysian palm oil are likely to prevent any increase in commercial sales.

### Cotton

U.S. cotton exports to South Asia normally consist almost exclusively of shipments to Bangladesh under the P.L. 480 program. Cotton sales to the region in fiscal 1986 are estimated near the fiscal 1985 level of 68,000 bales. Fiscal 1987 exports may rise to about 80,000 bales if current P.L. 480 funding levels to Bangladesh are maintained and larger quantities of lower-priced U.S. cotton can be shipped. However, commercial sales to Bangladesh are unlikely, despite some growth in import demand, because of competition from other traditional suppliers, principally Pakistan.

### Other Commodities

*Inedible tallow.* Pakistan is the region's only market for inedible tallow. India banned imports in 1983 because tallow was being used illegally to make hydrogenated edible oil. U.S. sales increased about 12 percent to 90,000 tons in fiscal 1986, although value fell 20 percent to about \$30 million. U.S. exports are projected to rise to about 100,000 tons valued at \$31 million in fiscal 1987, based on steady growth in Pakistani demand.

*Rice.* Exports of rice to the region consist primarily of concessional shipments to Bangladesh, but also include smaller shipments to India under the P.L. 480, Title II program. During fiscal 1986, lower P.L. 480 allocations to Bangladesh reduced U.S. sales about 50 percent to an estimated 44,000 tons valued at about \$12 million. Exports are forecast to rise to about 59,000 tons in fiscal 1987, as lower U.S. prices and larger Bangladeshi import requirements boost P.L. 480 shipments.

*Nonfat dry milk.* All U.S. nonfat dry milk exports to the region occur through concessional programs, with India normally the major recipient. Shipments fell about 35 percent to an estimated 13,000 tons (\$8 million) in fiscal 1986 because of smaller requirements in India. Increases in program levels to other countries are forecast to boost shipments to about 17,000 tons (\$10 million) in fiscal 1987.

*Pulses.* India is the major pulse buyer in the region, with U.S. marketings, primarily of dry peas, benefiting from liberal Indian import policies. After growing steadily to 26,000 tons (\$8 million) in fiscal 1985, U.S. exports failed to expand significantly in fiscal 1986 because of stiff competition from suppliers in the Middle East and Thailand. Pulse exports to the region are forecast to rise to about 30,000 tons (\$10 million) in fiscal 1987.



## SUBSIDIES AND PROTECTIONISM IN INDIAN AGRICULTURE

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**Abstract:** Major government policy interventions in India's food grain, oilseed, and cotton sectors include input subsidies, producer price supports, consumer subsidies, and state controls on foreign trade. Estimates of policy transfers to producers and consumers as a result of these policies indicate that the effects of trade policies tend to dominate the relatively minor effects of other policies. During 1981/82–1983/84, producers of wheat, rice, and cotton were taxed and consumers were subsidized by trade practices. Oilseed producers and processors tended to be subsidized by controls on trade, while consumers of edible oils were taxed. Despite recent steps to liberalize trade in industrial goods and technology, measures to liberalize trade in essential agricultural commodities are unlikely because of the importance of maintaining consumer price stability and a development strategy focusing on growth with equity.

**Keywords:** India, wheat, rice, oilseeds, cotton, producer subsidies, consumer subsidies, protectionism, trade liberalization.

Policy interventions that influence input costs, producer and consumer prices, and trade are extensive in Indian agriculture. Most variable farm inputs, including fertilizer, institutional credit, electricity, and irrigation, are provided with either general or targeted subsidies. The Government supports prices of most major farm commodities, and its purchases are particularly effective in supporting producer prices for wheat, rice, and cotton. Direct consumer subsidies are provided through the Public Distribution System (PDS), which distributes a substantial portion of total wheat, rice, and sugar supplies at below-market prices. Foreign trade of most farm commodities is closely regulated either by state trading or a combination of quotas, tariffs, and duties. The principal objectives of these policies are to foster the adoption of new technology, to ensure adequate supplies of acceptably-priced staple foods for low-income consumers while protecting producer price incentives, and to regulate expenditures of scarce foreign exchange.

The extent to which this broad array of policy interventions distorts Indian prices,

production, consumption, and trade of major farm commodities from what they would be under a more market-oriented regime is a matter of increasing interest for two general reasons. First, in the context of contracting U.S. agricultural exports and upcoming multilateral trade negotiations, there is increasing interest in the extent to which various countries subsidize or protect their markets for farm products, and in the likelihood and impacts of potential liberalization measures. While most concern is generally aimed at subsidies and protectionism in developed country markets, there is mounting interest in these issues in developing countries because of their expanding role in farm trade. India may provide an instructive example of the effects of policies in developing countries because of its many policy interventions and relatively good data. Second, there is particular interest in India because of the recent strong performance of its farm economy, particularly in the food grain sector, and questions regarding the role of subsidies and protectionism in that performance. In addition, a trend towards liberalization of India's trade regime for industrial goods, raw



materials, and technology, combined with the stronger agricultural sector growth, raises the possibility that efforts to reduce subsidies and protectionism may eventually extend to the farm sector.

This article describes the nature of the major government policy interventions affecting input and output pricing and trade of principal commodities, including wheat, rice, three major oilseeds (peanuts, rapeseed, and soybeans) and their products, and cotton, and provide estimates of the degree to which policy interventions result in producer or consumer subsidies. Available budgetary and price data are used to derive measures, termed producer and consumer subsidy equivalents, that estimate the value to producers and consumers of various forms of policy intervention during 1981/82–1983/84. The article also uses the information provided by producer and consumer subsidy equivalent estimates, along with work done by others, to examine the likelihood and implications of subsidy reductions or trade liberalization measures.

### *Input Policies*

Prices of most major variable inputs are affected by a variety of central and state government subsidies. In addition, fertilizer prices are administered and imports are strictly regulated. The major variable inputs that are subsidized, and for which necessary data are available, are fertilizer, credit, rural electric power, and operation and maintenance costs for surface water irrigation facilities. Other variable inputs, including primarily seeds and pesticides, are commonly provided with varying degrees of subsidization for specific crops, regions, or types of farmers. Data for estimating these subsidies are not available, but total outlays on them are believed to be small relative to those on inputs included in this study. Also excluded from this study, primarily because of problems with data and methods, are government transfers arising from expenditures on agricultural research and extension, and on development of farm infrastructure, including heavy investment in surface irrigation systems.

**Fertilizer.** Under the Fertilizer Retention Price Scheme (FRPS), all domestically produced fertilizer is purchased by the Government at prices based on each

plant's costs of production and sold at administered prices that are the same at all railheads in the country. Fertilizer imports, which accounted for 33 percent of total use in 1981/82–1983/84, are made exclusively by the government-run Minerals and Mining Trading Corporation. Imported fertilizers are sold at the same prices as domestic fertilizers.

Budget outlays on fertilizer subsidies fall into three categories: 1) outlays to cover the difference between prices paid to domestic producers under the FRPS and administered sale prices; 2) outlays to cover the full transportation costs of domestic fertilizer, and; 3) outlays to cover the difference between the cost of imported fertilizer, including inland transportation, and administered sale prices. The subsidy on imported fertilizer is incurred primarily on potassium and some complex fertilizers that are not produced domestically.

Subsidies on domestic fertilizer freight and imports affect farmers directly and can be calculated easily from government budget data. However, outlays under the FRPS could be a subsidy to either fertilizer producers or to farmers, depending on the relationship between domestic and world prices. If domestic fertilizer prices are above import parity prices, then FRPS costs represent a subsidy to fertilizer producers rather than farmers. Therefore, for the purpose of this study, the size and incidence of the subsidy resulting from government control of domestic prices is determined based on the difference between administered domestic sale prices for nitrogen and phosphate fertilizers and estimates of their respective import parity prices.

Estimates of fertilizer subsidies are shown in table 1. The results indicate that control of domestic fertilizer prices resulted in a subsidy to fertilizer producers, and a tax on farmers, in three of the years studied. However, taken together, the various fertilizer policies led to a net subsidy to farmers in all but one year. Only in 1982/83, when the tax stemming from price controls was relatively high and the subsidy on imports relatively low, was there a net fertilizer tax on farmers. In tables 2, 4, and 6, the total fertilizer subsidy/tax to farmers is allocated among crops based on crop shares of total fertilizer use.



Table 1--Estimates of major agricultural input subsidies in India  
(April/March fiscal years)

| Input                                       | 1980/81 | 1981/82 | 1982/83 | 1983/84 |
|---------------------------------------------|---------|---------|---------|---------|
| Million Rupees                              |         |         |         |         |
| A. Fertilizer subsidies                     |         |         |         |         |
| 1. Control of prices                        | 970     | -3      | -3,504  | -2,732  |
| 2. Domestic freight                         | 680     | 950     | 1,300   | 1,850   |
| 3. Imported fertilizer                      | 3,350   | 1,000   | 550     | 1,420   |
| 4. Total                                    | 5,000   | 1,947   | -1,654  | 538     |
| B. Credit subsidies                         |         |         |         |         |
| 1. Short term                               | 1,465   | 1,496   | 1,740   | 1,969   |
| 2. Medium- and long term                    | 905     | 904     | 1,035   | 1,242   |
| 3. Total                                    | 2,370   | 2,400   | 2,775   | 3,211   |
| C. Rural electrification subsidy            |         |         |         |         |
| 1. Total                                    | 6,000   | 4,900   | 6,128   | 7,147   |
| 2. Agricultural share                       | 3,000   | 2,450   | 3,064   | 3,574   |
| D. Operating subsidy for irrigation systems | 4,785   | 4,907   | 5,427   | 6,415   |
| E. Total above                              | 15,155  | 11,704  | 9,612   | 13,738  |
| Memo items:                                 |         |         |         |         |
| Exchange rate (Rs/\$)                       | 7.89    | 8.93    | 9.63    | 10.31   |
| Agric. GDP (Rs billion)                     | 411.64  | 445.90  | 464.78  | 585.29  |

Note: See text for explanations.

SOURCES: World Bank, ERS estimates from Government of India and Fertilizer Association of India data.

**Credit.** India has been steadily expanding the availability of short-, medium-, and long-term institutional credit to its farm sector. Total credit extended grew from Rs 33.9 billion (\$4.2 billion) in 1980/81 to Rs 50.9 billion (\$4.9 billion) in 1983/84. Most short- and medium-term credit is extended through a growing network of village level cooperative societies with nationalized commercial banks also becoming more involved in farm lending. A lesser amount of longer term credit for irrigation facilities and other land improvements is extended by Land Development Banks. Most institutional credit to agriculture is provided at below-market interest rates, implying a subsidy to users of credit.

Estimates of the total credit subsidy have been made in other research for years up to 1981/82. These estimates were extrapolated to 1982/83 and 1983/84 based on growth in total credit during those years, and divided between short-term credit and medium- and long-term credit according to the share of each loan type in total credit. The resulting estimates of the credit subsidy are included in table 1. They indicate that the total subsidy increased from about Rs 2.4 billion in 1980/81 to Rs 3.2 billion in 1983/84. The cost of this subsidy averaged about 6 percent of total credit extended during 1980/81-1983/84.

In tables 2, 4, and 6, short-term credit is allocated among crops based on their shares of total fertilizer use because much of this credit is used to buy fertilizer. The medium- and

long-term credit subsidy is allocated according to crop shares in total irrigated area because most credit of this type is used for irrigation equipment.

**Rural electrification.** Electric power is provided in rural areas at rates that are below actual costs of generation and distribution. Some rural power is used for farm operations, principally the operation of electric irrigation pumps and stationary threshers. The rural electrification subsidy for years up to 1981/82 has been estimated by the World Bank from Indian budget documents, and these estimates have been adjusted to 1982/83 and 1983/84 based on inflation in power costs and annual growth in power use in the farm sector. It is assumed that half of the total rural power subsidy is applicable to agriculture.

The subsidy estimates are included in table 1, and are allocated to various crops (tables 2, 4, and 6) according to crop shares in total irrigated area. It should be noted, however, that estimating the electricity subsidy from budget data may overstate the subsidy to farmers because relatively high administered prices of fuels in the Indian economy may result in relatively high power generation costs. Also, some budgetary losses may stem from inefficiencies in the operation of public power facilities.

**Irrigation.** Development of irrigation potential has been a key aspect of India's agricultural development effort. Of total gross irrigated area of about 59 million hectares in 1983/84, about 25 million hectares were irrigated through publicly funded surface water irrigation schemes. The remainder was irrigated primarily with privately owned wells, some of which were built and operated with the help of credit and power subsidies noted above.

Public investment in surface irrigation facilities accounts for about 10 percent of total annual public sector development outlays. Significant costs are also incurred, primarily by state governments, for maintaining and operating surface irrigation projects. In this study, only the estimated budget outlays on variable operating and maintenance costs are included as a subsidy to producers. Estimation of the subsidy accruing to farmers as a result of public investment in



irrigation is a complex methodological problem that is beyond the scope of this study.

Table 1 includes estimates of the total operating and maintenance costs for surface water irrigation schemes borne by the Government during 1980/81–1983/84. Estimates for 1980/81–1981/82 were made by the World Bank, and were adjusted to 1982/83 and 1983/84 according to inflation in the water services sector and the change in area irrigated under surface irrigation schemes each year. The estimates indicate that this is the most important input subsidy to Indian farmers, with annual costs rising from Rs 4.8 billion in 1980/81 to about Rs 6.4 billion in 1983/84. The irrigation subsidy is allocated to various crops in tables 2, 4, and 6 according to crop shares in total irrigated area.

The estimates provided in table 1 indicate that the total value of input subsidies varied from a low of Rs 9.6 billion (\$928 million) in 1982/83 to a high of Rs 15.2 billion (\$1.9 billion) in 1980/81. These subsidies ranged from 3.7 percent of the total value of Indian farm production in 1980/81 to 2.1 percent in 1982/83, and averaged 2.6 percent during 1980/81–1983/84.

### *Wheat and Rice Policies*

Wheat and rice are India's major crops, together accounting for 68 percent of food grain production, 46 percent of total farm output, and about 52 percent of the calories in the average diet. Because of the critical contribution of wheat and rice to producer and consumer welfare, policy interventions are extensive. Policies affecting wheat and rice are similar, and include government control of imports and exports, producer price supports, distribution of subsidized wheat and rice to consumers through the PDS, and government buffer stocking. Principal objectives of policy interventions are to maintain adequate producer price incentives and to ensure adequate supplies of acceptably-priced food grains for low-income consumers. Historically, these objectives have been largely achieved, with steady growth in production accompanied by a general decline in real food grain prices since the early 1970's.

Annual budget outlays on price support, public distribution, and buffer stocking operations fluctuate depending on the spread

between support prices and subsidized issue (distribution) prices, the levels of domestic procurement and distribution, the size of stocks, and the level and price of imports. Total budgetary costs of these operations averaged Rs 7.3 billion (\$755 million) during 1981/82–1983/84.

*State trading.* Virtually all of India's wheat and rice trade is conducted by the government-run Food Corporation of India (FCI). In the last year, the Government has also allowed some private wheat exports in an effort to dispose of a large surplus. However, private exports of food grains are only permitted when there is a domestic surplus and are normally subject to quotas or minimum export prices. Imports are made only by the FCI, with quantities determined by an inter-ministerial committee. Imported cereals are marketed only through the PDS at the same prices as domestically procured cereals.

*Producer price supports.* Support, or procurement, prices are established annually for wheat, paddy, and milled rice. Prices are recommended by the Commission on Agricultural Costs and Prices based on assessments of production costs, desired shifts in cropping patterns, domestic supply and demand conditions, government procurement needs for the PDS and, to a limited extent, world price movements. Recommended prices are sometimes adjusted after review by an inter-ministerial committee.

Producer wheat prices are supported by government purchases at the procurement price in surplus areas, with normal purchases equal to 20–25 percent of production. Paddy prices are supported in a similar way, but most paddy is procured as milled rice by imposing a levy on private rice millers. The levy system requires millers to sell a percentage of their output to the Government at prices keyed to the paddy procurement price. Although formal food grain zoning, which trapped food grains in surplus areas and depressed producer prices, was abolished in 1977, informal zoning is still used occasionally to ensure that procurement targets are achieved. While distress sales at below-procurement prices seldom occur, the existence of informal zoning, coupled with levy procurement of rice at fixed prices, at times depresses producer prices in surplus areas.



*Public distribution.* Domestically procured and imported wheat and rice are sold at below-market prices primarily through the PDS, a network of government-run "Fair Price Shops" located largely in urban areas. In addition, 40–50 percent of annual wheat sales go to modern roller flour mills and bakers at fixed prices. Issue (retail) prices through these channels are set above procurement prices, but do not cover total costs of procurement, handling, transport, and storage. Distribution of wheat accounts for 20–25 percent of total disappearance, while distribution of rice accounts for 10–15 percent.

*Buffer stocks.* The Government, through the FCI, maintains operational stocks of wheat and rice to meet normal PDS needs during the marketing year, and also maintains a buffer stock to meet increased demand through the PDS during years when domestic production and procurement fall. Operational stock requirements range from 5 to 11 million tons during the year, depending on the time until the next harvest. The buffer stock target is 10 million tons.

#### *PSE's for Rice and Wheat*

Estimates of average producer subsidy equivalents (PSE's) for wheat and rice for 1981/82–1983/84 are shown in table 2. These PSE's provide a measure, in absolute and percentage terms, of the value to producers of the trade and domestic policies described above. Positive numbers indicate a policy transfer (subsidy) to producers and negative numbers indicate a tax on producers.

PSE's for wheat and rice have two main components: State control of prices and trade, and input policies. The component resulting from state controls estimates the net effects of trade restrictions and price support programs on prices received by Indian farmers. These were calculated by computing the difference between domestic harvest prices of wheat and paddy and estimates of farmgate parity prices of comparable grades of imported wheat and rice. The components of the PSE's resulting from input policies that affect producer costs of fertilizer, credit, electricity, and irrigation water are calculated based on the subsidy estimates and allocation criteria described earlier.

Table 2--Producer subsidy equivalent estimates for wheat and rice in India (1981/82–1983/84 average) 1/

| Policy                                 | Wheat | Rice  |
|----------------------------------------|-------|-------|
| % of crop revenue                      |       |       |
| 1. Control of trade and prices         | -37.3 | -25.2 |
| 2. Input policies                      |       |       |
| a. Fertilizer                          | .8    | .1    |
| b. Credit                              | 1.1   | .8    |
| c. Rural electrification               | 1.4   | .8    |
| d. Irrigation                          | 2.5   | 1.5   |
| e. Total                               | 5.8   | 3.2   |
| 3. Total policy transfers to producers |       |       |
| a. % of crop revenue                   | -31.5 | -22.0 |
| b. Rs/ton                              | -507  | -501  |
| c. \$/ton                              | -52   | -51   |

1/ Wheat estimates are for April/March years and rice estimates are for October/September years.

SOURCES: ERS estimates from Government of India, and USDA data.

The results shown in table 2 indicate that, during 1981/82–1983/84, Indian producer prices for wheat and rice were below import parity prices. Thus, government regulation of prices and trade resulted in a tax on producers. This tax was only partially offset by input subsidies. As a result, the net effect of government policies was to tax wheat and rice production.

#### *CSE's for Wheat and Rice*

Consumer subsidy equivalent (CSE) estimates for wheat and rice, which indicate the value of government policies to consumers, are shown in table 3. The CSE's resulting from controls on trade and prices measure the difference between domestic open-market retail prices and import parity prices. The CSE's resulting from public distribution quantify the effects of PDS sales based on the difference between the administered issue prices and open-market retail prices. The results indicate that both distribution and trade policies subsidized wheat and rice consumers. Rice consumers were subsidized less than wheat consumers, but poor harvests in 1979/80 and 1982/83 led to abnormally high consumer rice prices and



Table 3--Consumer subsidy equivalent estimates for wheat and rice in India (1981/82-1983/84 average) 1/

| Policy                                 | Wheat              | Rice |
|----------------------------------------|--------------------|------|
|                                        | % of consumer cost |      |
| 1. Control of trade and prices         | 11.3               | 2.1  |
| 2. Public distribution                 | 3.6                | 4.8  |
| 3. Total policy transfers to consumers |                    |      |
| a. % of consumer cost                  | 14.9               | 7.0  |
| b. Rs/ton                              | 310                | 202  |
| c. \$/ton                              | 33                 | 21   |

1/ Wheat estimates are for April/March years and rice estimates are for October/September years.

SOURCES: ERS estimates from Government of India and USDA data.

this result may not be typical for all time periods.

### Oilseed Sector Policies

Oilseeds are India's second largest sector of agricultural production, with the ten major oilseeds accounting for about 12 percent of total farm output. Because of steadily declining food grain imports and low growth in oilseed production, edible oils have been India's largest farm import since 1977. During 1981/82-1983/84, total annual imports of soybean, rapeseed, palm, and sunflower oil averaged 1.3 million tons valued at about \$735 million. India is also a traditional exporter of oilseed meals, primarily peanut, rapeseed, and soybean meal, with exports averaging 966,000 tons valued at \$143 million during 1981/82-1983/84. Peanuts, rapeseed, and soybeans were selected for analysis because they are three of India's most important oilseeds. Together they accounted for 65 percent of oilseed production and 70 percent of edible oil output during 1981/82-1983/84. Soybean and rapeseed oil are also two of the major imported oils. The other two imported oils, palm and sunflower, are not produced domestically in significant quantities.

Policy interventions in the oilseed and products sector consist primarily of rigid control of foreign trade in oilseeds and oils and administered pricing and allocation of

imported oils. The primary objectives of these policies are to ensure remunerative oilseed producer prices to increase self-sufficiency in edible oils, and to manage growth in edible oil import demand and foreign exchange costs by keeping domestic oil prices high. Historically, meal exports have also been regulated through quotas and export duties to foster growth in domestic feed use. However, in recent years, export duties have been abolished because foreign competition, coupled with poor marketing infrastructure and quality, have depressed exports despite low internal prices relative to world prices.

In part, policy interventions reflect a unique pattern of demand for oilseed products in India that is characterized by strong demand for oil as a cooking medium and weak demand for meals and other livestock feeds because of low incomes and dietary preferences. This pattern contributes to a price regime where edible oil prices are substantially above world prices and meal prices are relatively low.

*State control of oilseed and oil trade.* Virtually all imports and exports of oilseeds are banned. Oilseed imports are banned to protect domestic producer incentives, and because it is considered less costly to import oil than to import oilseeds for processing in inland plants and then incur transport costs in reexporting meal.

Although private traders were permitted to import edible oil when large scale imports were initiated in 1977, the government-run State Trading Corporation (STC) has had a monopoly on imports since 1981. Import quantities are determined by an inter-ministerial committee, as are monthly allocations and pricing of imported oils to the PDS and the vanaspati (hydrogenated oil) industry--the only two marketing channels for imported oils. Import duties are levied on oil imported by the STC to redirect profits resulting from the differential between world and domestic prices, but the duties do not affect import levels.

*Producer price supports.* Support prices are established annually for all major oilseeds. However, these are generally ineffective because market prices are well above support levels.



### Control of imported oil prices.

Allocations of imported oils are sold at administered prices to the PDS for sale as pure cooking oil, and to the vanaspati industry. Prices are decided by inter-ministerial committee based on domestic prices and their effect on growth in demand and imports. Imported palm, rapeseed, and sunflower oils are sold to both the vanaspati industry and the PDS, while soybean oil is sold almost entirely to the vanaspati industry because of limited consumer acceptance as a pure cooking oil.

Export duties on meals. Peanut meal exports were subject to a duty of Rs 125 (\$14) per ton until February 1982 when the duty was abolished in an effort to boost sagging exports. Exports of peanut and some other meals were subject to quotas during 1981/82-1982/83, but actual exports were below the quotas.

### PSE's for Oilseeds and Products

Table 4 contains estimates of 1981/82-1983/84 average PSE's for selected oilseeds and their products. PSE's resulting from control of oilseed trade are based on the difference between domestic producer prices and the estimated farmgate parity price of imports. Total estimated input subsidies/taxes shown in table 1 are allocated to individual oilseeds according to the criteria noted earlier.

The PSE estimates indicate that, for soybeans, trade and input policies result in a net tax on soybean producers. However, rapeseed and peanut producers benefit from both higher prices received and lower production costs as a result of policy interventions. The results indicate that soybean producers tend to be taxed by a demand and price regime that favors oil over meal, while producers of rapeseed and peanuts, which contain a higher percentage of oil and a lower percentage of meal than soybeans, are subsidized.

Oil and meal PSE's in table 4 estimate the value to oilseed processors of policies that influence oilseed (input) and oil and meal (output) prices. The PSE's for oils include estimates of the effect of oilseed trade restrictions on processor costs based on the difference between domestic and import parity prices of oilseeds. They also include

Table 4—Producer subsidy equivalent estimates for selected oilseeds and products in India (1981/82-1983/84 average) 1/

| Policy                                                                | Soybeans | Rapeseed | Peanuts |
|-----------------------------------------------------------------------|----------|----------|---------|
| % of crop revenue                                                     |          |          |         |
| A. Oilseeds                                                           |          |          |         |
| 1. State control of oilseed trade                                     | -7.7     | 19.5     | 22.8    |
| 2. Assistance on inputs                                               |          |          |         |
| a. Fertilizer                                                         | .1       | .3       | —       |
| b. Credit                                                             | .3       | .5       | .3      |
| c. Rural electrification                                              | —        | .6       | .2      |
| d. Irrigation                                                         | —        | 1.1      | .4      |
| e. Total                                                              | .4       | 2.5      | .9      |
| 3. Total policy transfers to oilseed producers                        |          |          |         |
| a. % of crop revenue                                                  | -7.3     | 22.0     | 22.8    |
| b. Rs/ton                                                             | -191     | 915      | 936     |
| c. \$/ton                                                             | -18      | 96       | 92      |
| B. Oils                                                               |          |          |         |
| 1. State control of oilseed trade                                     | 13.2     | -18.5    | -23.8   |
| 2. State control of oil trade                                         | 35.6     | 57.4     | 44.9    |
| 3. Export duty on meal                                                | NA       | NA       | -4.6    |
| 4. Total policy transfers to processors per ton of oil                |          |          |         |
| a. % of processor revenue                                             | 48.8     | 38.9     | 20.5    |
| b. Rs/ton                                                             | 4,541    | 5,146    | 3,075   |
| c. \$/ton                                                             | 451      | 540      | 313     |
| C. Meals                                                              |          |          |         |
| 1. State control of oilseed trade                                     | 14.2     | -91.9    | -159.8  |
| 2. State control of oil trade                                         | 38.1     | 281.1    | 301.0   |
| 3. Duty on meal exports                                               | NA       | NA       | -4.0    |
| 4. Total policy transfers to processors per ton of meal               |          |          |         |
| a. % of processor revenue                                             | 52.3     | 189.2    | 137.2   |
| b. Rs/ton                                                             | 1,029    | 2,500    | 2,123   |
| c. \$/ton                                                             | 101      | 261      | 221     |
| D. Total policy transfers to processors per ton of oilseeds processed |          |          |         |
| a. % of processor revenue                                             | 28.4     | 40.1     | 27.7    |
| b. Rs/ton                                                             | 823      | 1,675    | 1050    |
| c. \$/ton                                                             | 81       | 175      | 109     |

— = Less than .05 percent. NA = Not applicable.

1/ Soybean and peanut estimates are for October/September years and rapeseed estimates are for April/March years.

SOURCES: ERS estimates from Government of India and USDA data.

the effects of oil trade restrictions on processor revenues based on the difference between domestic and import parity prices of oils. For peanut oil, the impact of the meal export duty on crushing returns is also estimated. Similarly, meal PSE's include estimates of the impact of oilseed trade policies on processor costs of producing meal, and of the impact of oil trade policies and the peanut meal export duty on processor returns.

The PSE estimates indicate that soybean processors benefit both from trade policies that keep domestic soybean prices low relative to world prices, and from policies that keep domestic oil prices high relative to world prices. For rapeseed and peanuts, processors are taxed by policies that keep domestic oilseed prices above world prices, but they receive a larger positive transfer from high domestic oil prices. The impact of the export duty on peanut meal in place during part of the study period is negligible compared with the effects of other policies.

Estimates of the total policy transfers to processors of soybeans, rapeseed, and peanuts are provided at the bottom of table 4. They



indicate that trade and price policies result in a substantial net transfer to oilseed processors. These estimates, however, only incorporate the effects of explicit government policies, and do not account for the impact on processors' revenues of relatively low domestic meal prices resulting from such factors as weak demand, and poor market infrastructure and quality. When actual domestic meal prices are taken into account, total policy transfers to processors fall to 16 percent of the value of oilseeds processed for soybeans, 30 percent for rapeseed, and 15 percent for peanuts.

### *CSE's for Oilseed Products*

Estimated CSE's for oils and meals are shown in table 5. The impact of trade restrictions on consumer costs of domestic oil is based on the difference between domestic retail and import parity prices of oil, while the impact of administered pricing on the cost of imported oil is based on the difference between import costs and administered prices. Peanut oil is not imported, so imported oil pricing policies do not apply. The CSE results for oils indicate that both trade and import pricing policies substantially tax consumers. The comparatively high taxes on consumption of peanut and rapeseed oil reflect a relatively large disparity between domestic and world prices for these oils that is indicative of Indian consumer preference for these traditional oils.

The CSE's for meals incorporate the combined effects of oilseed and oil policies on domestic meal prices, by estimating the differences between the domestic and import parity prices of meals. For peanut meal, the impact of the export duty is also estimated. The results show that, on balance, policies that permit high domestic oil prices contribute to substantial price benefits to domestic meal users by allowing meal to be sold at subsidized prices. The subsidy on peanut meal use because of the export duty is insignificant relative to the effects of other policies. However, these estimates may overstate the actual subsidy to meal users because most domestically consumed meal is probably of lower quality than the meals traded in world markets.

### *Cotton Sector Policies*

Cotton is India's principal fiber crop, accounting for 75 percent of total fiber production and about 4 percent of total farm output. Since the mid-1970's, production gains have outstripped growth in domestic mill demand and India has emerged as a consistent, though small, net exporter of raw cotton. Production gains, as well as exports, have occurred primarily in long staple cottons because of the increased availability and use of improved and hybrid long staple varieties. During 1981/82-1983/84, cotton exports averaged 370,000 bales (480-lbs. each) annually.

As with other major farm commodities, the principal policy interventions, in addition to input subsidies, consist of producer price supports and close regulation of trade, through a combination of state trading, export quotas, export duties, and minimum export prices. Imports of cotton are generally banned, although small quantities of medium staple cotton are occasionally imported by government agencies if there is an acute domestic shortage.

The objectives of these policies are to balance the adequacy of producer price incentives with the availability of acceptably priced cotton cloth for low-income consumers, and to keep the important textile sector competitive in world markets. Key means of achieving these goals have been price support purchases and adjustments of raw cotton export quotas. In the domestic market, most

Table 5--Consumer subsidy equivalent estimates for selected oilseed products in India (1981/82-1983/84 average) 1/

| Policy                                    | Soybeans | Rapeseed | Peanuts |
|-------------------------------------------|----------|----------|---------|
| % of consumer cost                        |          |          |         |
| A. Oil                                    |          |          |         |
| 1. Domestic oil                           |          |          |         |
| a. State control of oil trade             | -5.1     | -49.5    | -43.8   |
| 2. Imported oil                           |          |          |         |
| a. Price policy for imported oil          | -29.9    | -6.9     | NA      |
| 3. Total policy transfers to consumers    |          |          |         |
| a. % of consumer cost                     | -35.0    | -56.4    | -43.8   |
| b. Rs/ton                                 | -3,293   | -8,759   | -6,892  |
| c. \$/ton                                 | -530     | -915     | -696    |
| B. Meal                                   |          |          |         |
| 1. State control of oilseed and oil trade | 23.0     | 45.5     | 42.4    |
| 2. Export duty on meal                    | NA       | NA       | 4.1     |
| 3. Total policy transfers to consumers    |          |          |         |
| a. % of consumer cost                     | 23.0     | 45.5     | 46.5    |
| b. Rs/ton                                 | 456      | 602      | 655     |
| c. \$/ton                                 | 46       | 63       | 66      |

NA = Not applicable.

1/ Soybean and peanut product estimates are for October/September years and rapeseed product estimates are for April/March years.

SOURCES: ERS estimates from Government of India and USDA data.



cotton is marketed by private traders in a competitive environment, with government agencies selling their stocks both to public sector mills and in the open market to help moderate swings in domestic prices.

*Producer price supports.* Producer support prices for seed cotton are established annually and made effective through purchases by government agencies. In one major cotton-producing state (Maharashtra), there is a monopoly procurement scheme whereby all cotton produced is procured at fixed prices.

*Export quotas.* Raw cotton is exported by both government agencies and private traders subject to quotas that are decided by an inter-ministerial committee and announced periodically during the marketing year. The quota system, coupled with export pricing regulations, tends to constrain exports both through the quotas themselves, and because unpredictable announcement of quotas disrupts export marketing activities. The primary factor in setting quotas is the domestic supply and demand outlook, and chronic uncertainty regarding production and use conditions contributes importantly to indecision on quotas.

*Export duties.* During 1981/82-1983/84, an export duty of Rs 1,000 (\$104) per ton was imposed on medium staple cotton (staple length of below 31/32"). Exports of longer staple varieties were duty free. The duty depressed domestic prices of medium staple cottons and transferred a portion of profits from medium staple exports to the Government. The duty is adjusted, when necessary, to keep Indian cotton competitive in export markets.

*Minimum export prices.* All exports of raw cotton are commonly subject to minimum export prices fixed by variety. The purpose of the minimum export prices is to prevent competition between Indian exporters that would depress domestic producer prices. Although the minimum prices are adjusted periodically to reflect world price movements, delays in their adjustment have occasionally disrupted export sales.

#### *PSE's for Cotton*

Estimated PSE's for medium and long staple cotton are shown in table 6. For both

Table 6--Producer subsidy equivalent estimates for medium and long staple cotton in India (1981/82-1983/84 average) 1/

| Policy                                 | Medium staple     | Long staple |
|----------------------------------------|-------------------|-------------|
|                                        | % of crop revenue |             |
| A. Control of trade                    | -23.7             | -40.8       |
| B. Export duty                         | -7.0              | NA          |
| C. Assistance on inputs                |                   |             |
| 1. Fertilizer                          | .3                | .1          |
| 2. Credit                              | 2.4               | 2.2         |
| 3. Rural electrification               | 1.8               | 1.7         |
| 4. Irrigation                          | 3.4               | 3.1         |
| 5. Total                               | 7.9               | 7.1         |
| D. Total policy transfers to producers |                   |             |
| a. % of crop revenue                   | -22.8             | -33.7       |
| b. Rs/ton                              | -1,147            | -1,795      |
| c. \$/ton                              | -112              | -175        |

NA = Not applicable.

1/ Estimates are for September/August years. Medium staple length defined as 25/32"-30/32", and long staple length defined as 31/32" and above.

SOURCES: ERS estimates from Government of India, East India Cotton Association, and USDA data.

grades, the PSE's include an estimate of the policy transfers to producers resulting from control of trade. The impact of the export duty is also estimated for medium staple cotton. The PSE's arising from trade restrictions are estimated based on the difference between domestic producer prices for representative varieties of seed cotton and import parity prices for similar varieties commonly sold in world markets. For medium staple cotton, a portion of the differential between domestic and world prices is attributed to the export duty. Input subsidies are allocated to cotton based on the criteria indicated earlier, and divided between medium- and long staple cotton according to their shares of total cotton production.

The results in table 6 indicate that controls on trade result in a substantial tax on cotton production, particularly of long staple varieties. The estimated tax on production of medium staple cotton as a result of the export duty is small compared with the effects of general trade restrictions. The taxes imposed by trade policies are only partially offset by



the relatively small net transfer to producers arising from policy interventions in input markets.

### *CSE's for Cotton*

Estimated CSE's for medium- and long staple cotton are shown in table 7. Differentials between domestic wholesale prices and import parity prices are used to estimate the effects of trade restrictions. The CSE estimates indicate that policy interventions represent a substantial policy transfer to domestic users of raw cotton. Overall, during 1981/82-1983/84, policy interventions in raw cotton trade resulted in a substantial policy transfer away from farmers to producers or consumers of textile products.

### *Prospects for Trade Liberalization*

*Inputs.* The results indicate that, during the years studied, policy transfers to farmers due to intervention in input markets are relatively small, particularly when compared with the effects of trade and pricing policies on prices received by farmers. Fertilizer sector policies resulted in a net subsidy to farmers in three of the years studied, but declining world fertilizer prices and higher domestic prices since 1983/84 have likely reduced the size of this economic subsidy.

Table 7--Consumer subsidy equivalent estimates for medium and long staple cotton in India (1981/82-1983/84 average) 1/

| Policy                                    | Medium staple      | Long staple |
|-------------------------------------------|--------------------|-------------|
|                                           | % of consumer cost |             |
| A. Control of trade                       | 17.1               | 23.9        |
| B. Export duty                            | 7.8                | NA          |
| C. Total policy of transfers to consumers |                    |             |
| 1. % of consumer cost                     | 24.9               | 23.9        |
| 2. Rs/ton                                 | 3,202              | 3,774       |
| 3. \$/ton                                 | 311                | 366         |

NA = Not applicable.

1/ Estimates are for September/August years. Medium staple length defined as 25/32"-30/32", and long staple length defined as 31/32" and above.

SOURCES: ERS estimates from Government of India, East India Cotton Association, and USDA data.

However, the large budgetary cost of current fertilizer policies is of increasing concern to policymakers, who are confronted with difficult choices. Government costs can be reduced only by lowering prices paid to fertilizer producers under the FRPS, improving efficiency in fertilizer production, or raising administered fertilizer sale prices. Lower producer prices would slow fertilizer production, place some plants at financial risk, and increase fertilizer imports in the context of a very tight balance of payments outlook. Higher sale prices would slow growth in fertilizer use and food output, and place upward pressure on food prices. Higher sale prices of fertilizer and food could also have significant adverse consequences for small farmers, as well as the rural and urban poor. Previous research has confirmed the significance of these possible adverse effects, and indicated that a combination of lower fertilizer producer prices and higher sale prices may be the most acceptable means of adjustment. Other research has also indicated that alternative expenditures of funds now spent on fertilizer subsidies, including targeted food subsidies in the short term and irrigation investments in the longer term, may be a more cost-effective means of stimulating production and reducing poverty.

While steps will likely be taken to reduce the cost of fertilizer policies, reductions in outlays for credit, electrification, and irrigation programs are unlikely. These programs are regarded by policymakers as high return investments with favorable distributional consequences---a view that has been generally supported by available research. Development plans give high priority to public investment in irrigation facilities, investments that are complemented by subsidies on electric power and credit.

*Food grains.* Restrictive trade policies that insulate domestic producers and consumers from the world market are the dominant policy intervention in the wheat and rice sectors. The magnitude of the tax on production and the subsidy on consumption during 1981/82-1983/84 as a result of restricting trade suggests that a transition to freer trade would lead to substantial adjustments in domestic prices, production, and consumption. Although the decline in world wheat and rice prices since 1983/84 has tended to reduce the potential costs of



adjustment by narrowing the gap between domestic and import parity prices, movement towards more liberal wheat and rice trade is unlikely.

The current trade regime makes it possible to balance producer and consumer interests and implement a strategy of growth with equity in an economy where agriculture dominates output and employment. The existence of a large number of low income consumers, who spend the bulk of their income on food, makes low and stable food prices a key priority of public policy. And, although Indian farmers have a demonstrated ability to respond to higher prices and create more employment and income in the long run, investment in research, extension, irrigation facilities, and other agricultural infrastructure is viewed by policymakers as a more equitable growth strategy because of a large number of marginal and subsistence producers.

Previous research has tended to show that the negative effects of higher food prices on poor consumers more than offset benefits they would receive from increased production, employment, and income. Other research has also tended to confirm that longer term investments in irrigation and other farm infrastructure may carry more favorable growth and distributional consequences than reliance on producer price incentives.

The critical importance of balancing producer and consumer interests explains the extensive policy intervention in domestic and foreign food grain trade, and suggests that steps to liberalize food trade will not likely be a corollary to recent liberalization measures in the industrial goods and technology sectors. Exposure of nonfarm sectors to world price fluctuations carries much less potential for adversely affecting agricultural development and the welfare of the poor than would exposure of food grain consumers to world prices.

*Oilseeds and products.* Restrictive trade practices are also the most significant policy intervention in the oilseed sector, resulting in substantial positive transfers to oilseed producers and processors, and large taxes on oil consumers. General declines in world prices of oilseeds, oils, and meals since 1983/84 have likely increased the size of the transfer to domestic oilseed producers,

increased the tax on oil consumers, reduced the subsidy to meal users, and increased the net transfer to oilseed processors.

Although policies that result in such large taxes on oil consumption would appear inconsistent with the earlier stated priority of low and stable food prices, a number of factors weigh against the likelihood of trade liberalization measures that would likely reduce domestic oil prices and increase imports. First, oilseed sector development to reduce costly imports of edible oil has become a major priority. High and stable oilseed producer price incentives are viewed by policymakers as critical in achieving production gains. Oilseed sector development is also viewed as having favorable distributional consequences because most production is on small, rainfed holdings in areas that have not been able to take full advantage of high-yielding wheat and rice technology. Because of low levels of technology and investment, as well as substantial weather-induced yield variability, costs of production remain relatively high for most oilseeds. Since oil prices are the key determinant of derived demand and of prices for oilseeds, policies that maintain high oil prices are an important component of the oilseed development strategy.

Second, it is unlikely that there will be any significant breakthroughs soon that would raise domestic oilmeal prices and allow oil prices to fall without affecting oilseed producer prices. Low domestic oilmeal prices are largely a function of weak effective demand for meats and other livestock products, inadequate export marketing infrastructure, and poor post-harvest drying and handling practices that will require longer term solutions.

Finally, although the results indicate that oilseed processors receive a large net transfer from high oil prices that could be reduced without dampening oilseed producer prices, measures that would reduce processor returns are also unlikely. Existing policies tend to compensate processors for relatively low average rates of capacity utilization and high unit costs arising from variability in oilseed production. In addition, high processing returns are stimulating private investment in



new and more efficient processing plants in a sector that is characterized by aging and outmoded facilities.

*Cotton.* Raw cotton trade restrictions resulted in a substantial tax on cotton producers during 1981/82–1983/84, as well as a substantial policy transfer to domestic users of raw cotton and/or cotton cloth. While the recent sharp drop in world cotton prices has reduced the price differential between domestic and foreign cotton, relaxation of quotas and other controls on raw cotton trade is unlikely.

The primary objectives of a new long-term textile sector policy announced in 1985 are to provide adequate supplies of low-cost cloth for the domestic market, and to expand textile and garment exports through the development of a more modern and efficient mill sector. Both of these objectives would tend to be supported by the continuation of trade policies that contribute to relatively low and stable internal cotton prices. In addition, Indian producers have generated a large surplus of cotton in recent years, indicating their ability to produce ample supplies under the existing trade and price regime.



Appendix I—Supply and use of wheat in South Asia

| Country                          | Area         | Yield        | Pro-<br>duc-<br>tion | Im-<br>ports | Ex-<br>ports | Disappearance |               |      |        | Ending<br>stocks | July/June trade |       |              |
|----------------------------------|--------------|--------------|----------------------|--------------|--------------|---------------|---------------|------|--------|------------------|-----------------|-------|--------------|
|                                  |              |              |                      |              |              | Food          |               | Feed | Total  |                  | Imports         |       | Ex-<br>ports |
|                                  |              |              |                      |              |              | Total         | Per<br>capita |      |        |                  | Total           | U.S.  |              |
|                                  |              |              |                      |              |              |               |               |      |        |                  |                 |       |              |
|                                  | 1,000<br>ha. | Tons/<br>ha. |                      | 1,000 tons   |              |               | Kgs.          |      |        |                  | 1,000 tons      |       |              |
| Bangladesh (July/June):          |              |              |                      |              |              |               |               |      |        |                  |                 |       |              |
| 1980/81                          | 591          | 1.85         | 1,093                | 993          | 0            | 1,897         | 21.5          | 100  | 1,997  | 556              | 993             | 368   | 0            |
| 1981/82                          | 534          | 1.81         | 967                  | 1,111        | 0            | 2,267         | 25.0          | 90   | 2,357  | 277              | 1,111           | 533   | 0            |
| 1982/83                          | 519          | 2.11         | 1,095                | 1,500        | 0            | 2,546         | 27.3          | 0    | 2,546  | 326              | 1,500           | 550   | 0            |
| 1983/84                          | 530          | 2.28         | 1,210                | 1,876        | 0            | 2,702         | 28.2          | 0    | 2,702  | 710              | 1,876           | 600   | 0            |
| 1984/85                          | 676          | 2.17         | 1,464                | 1,898        | 0            | 3,530         | 35.9          | 0    | 3,530  | 542              | 1,898           | 886   | 0            |
| 1985/86*                         | 583          | 2.08         | 1,210                | 1,300        | 0            | 2,400         | 23.8          | 0    | 2,400  | 652              | 1,300           | 574   | 0            |
| India (April/March):             |              |              |                      |              |              |               |               |      |        |                  |                 |       |              |
| 1980/81                          | 22,172       | 1.44         | 31,830               | 50           | 55           | 34,025        | 49.5          | 300  | 34,325 | 4,000            | 50              | 38    | 50           |
| 1981/82                          | 22,279       | 1.63         | 36,313               | 2,000        | 0            | 36,013        | 51.3          | 300  | 36,313 | 6,000            | 2,265           | 1,515 | 0            |
| 1982/83                          | 22,144       | 1.69         | 37,452               | 2,486        | 100          | 37,538        | 52.4          | 300  | 37,838 | 8,000            | 3,700           | 3,700 | 100          |
| 1983/84                          | 23,567       | 1.82         | 42,794               | 3,270        | 35           | 41,729        | 56.9          | 300  | 42,029 | 12,000           | 2,500           | 1,290 | 35           |
| 1984/85                          | 24,672       | 1.84         | 45,476               | 700          | 100          | 42,776        | 57.1          | 300  | 43,076 | 15,000           | 150             | 64    | 150          |
| 1985/86*                         | 24,400       | 1.81         | 44,229               | 100          | 460          | 43,469        | 56.8          | 400  | 43,869 | 15,000           | 100             | 50    | 600          |
| Nepal (July/June):               |              |              |                      |              |              |               |               |      |        |                  |                 |       |              |
| 1980/81                          | 360          | 1.33         | 477                  | 30           | 0            | 507           | 33.8          | 0    | 507    | 0                | 30              | 21    | 0            |
| 1981/82                          | 380          | 1.38         | 526                  | 28           | 0            | 554           | 36.0          | 0    | 554    | 0                | 28              | 7     | 0            |
| 1982/83                          | 482          | 1.37         | 660                  | 30           | 0            | 690           | 43.8          | 0    | 690    | 0                | 30              | 10    | 0            |
| 1983/84                          | 400          | 1.59         | 634                  | 4            | 0            | 638           | 39.5          | 0    | 638    | 0                | 4               | 4     | 0            |
| 1984/85                          | 452          | 1.18         | 534                  | 1            | 0            | 535           | 32.2          | 0    | 535    | 0                | 1               | 1     | 0            |
| 1985/86*                         | 480          | 1.23         | 589                  | 0            | 0            | 589           | 34.6          | 0    | 589    | 0                | 0               | 0     | 0            |
| Pakistan (May/April):            |              |              |                      |              |              |               |               |      |        |                  |                 |       |              |
| 1980/81                          | 6,924        | 1.57         | 10,857               | 320          | 0            | 11,200        | 130.6         | 0    | 11,200 | 975              | 305             | 186   | 0            |
| 1981/82                          | 6,982        | 1.64         | 11,473               | 346          | 0            | 11,215        | 125.6         | 0    | 11,215 | 1,579            | 400             | 200   | 0            |
| 1982/83                          | 7,223        | 1.57         | 11,304               | 570          | 78           | 11,521        | 125.0         | 0    | 11,521 | 1,854            | 580             | 178   | 53           |
| 1983/84                          | 7,398        | 1.68         | 12,414               | 393          | 205          | 12,000        | 126.6         | 0    | 12,000 | 2,456            | 366             | 177   | 219          |
| 1984/85                          | 7,326        | 1.49         | 10,882               | 1,042        | 49           | 12,312        | 126.5         | 0    | 12,312 | 2,019            | 1,036           | 293   | 49           |
| 1985/86*                         | 7,258        | 1.61         | 11,703               | 1,832        | 0            | 12,754        | 127.2         | 0    | 12,754 | 2,800            | 1,550           | 1,086 | 0            |
| Sri Lanka (January/December) 1/: |              |              |                      |              |              |               |               |      |        |                  |                 |       |              |
| 1980/81                          | 0            | —            | 0                    | 503          | 0            | 493           | 33.2          | 0    | 493    | 95               | 503             | 217   | 0            |
| 1981/82                          | 0            | —            | 0                    | 495          | 0            | 498           | 33.0          | 0    | 498    | 92               | 529             | 341   | 0            |
| 1982/83                          | 0            | —            | 0                    | 572          | 0            | 586           | 38.1          | 0    | 586    | 78               | 474             | 318   | 0            |
| 1983/84                          | 0            | —            | 0                    | 571          | 0            | 571           | 36.5          | 0    | 571    | 78               | 648             | 281   | 0            |
| 1984/85                          | 0            | —            | 0                    | 571          | 0            | 567           | 35.6          | 0    | 567    | 82               | 648             | 281   | 0            |
| 1985/86*                         | 0            | —            | 0                    | 665          | 0            | 640           | 39.5          | 0    | 640    | 107              | 595             | 229   | 0            |

\*Estimated.

1/ January/December of first year.

SOURCES: Official government data in each country; USOA estimates.



Appendix 2—Supply and use of rice in South Asia

| Country                          | Area         | Yield      | Pro-<br>duc-<br>tion | Im-<br>ports | Ex-<br>ports | Disappearance |               |      |        | Ending<br>stocks | Calendar year trade 1/ |    |              |
|----------------------------------|--------------|------------|----------------------|--------------|--------------|---------------|---------------|------|--------|------------------|------------------------|----|--------------|
|                                  |              |            |                      |              |              | Food          |               | Feed | Total  |                  | Imports                |    | Ex-<br>ports |
|                                  |              |            |                      |              |              | Total         | Per<br>capita |      |        | Total            | U.S.                   |    |              |
|                                  |              |            |                      |              |              |               |               |      |        |                  |                        |    |              |
| 1,000<br>ha.                     | Tons/<br>ha. | 1,000 tons | Kgs.                 | 1,000 tons   |              |               |               |      |        |                  |                        |    |              |
| Bangladesh (July/June):          |              |            |                      |              |              |               |               |      |        |                  |                        |    |              |
| 1980/81                          | 10,309       | 1.35       | 13,882               | 84           | 0            | 13,590        | 154.1         | 0    | 13,590 | 696              | 34                     | 0  | 20           |
| 1981/82                          | 10,459       | 1.30       | 13,631               | 144          | 20           | 14,113        | 155.6         | 0    | 14,113 | 338              | 296                    | 55 | 0            |
| 1982/83                          | 10,587       | 1.34       | 14,216               | 317          | 0            | 14,571        | 156.2         | 0    | 14,571 | 300              | 82                     | 35 | 0            |
| 1983/84                          | 10,546       | 1.37       | 14,500               | 180          | 0            | 14,890        | 155.3         | 0    | 14,890 | 90               | 588                    | 67 | 0            |
| 1984/85                          | 10,140       | 1.44       | 14,620               | 690          | 0            | 14,934        | 151.9         | 0    | 14,934 | 466              | 256                    | 67 | 0            |
| 1985/86*                         | 10,410       | 1.46       | 15,170               | 37           | 0            | 15,419        | 153.0         | 0    | 15,419 | 254              | 200                    | 75 | 0            |
| India (October/September):       |              |            |                      |              |              |               |               |      |        |                  |                        |    |              |
| 1980/81                          | 40,152       | 1.34       | 53,631               | 70           | 900          | 53,301        | 77.5          | 0    | 53,301 | 6,500            | 70                     | 0  | 1,143        |
| 1981/82                          | 40,708       | 1.31       | 53,248               | 10           | 675          | 54,083        | 77.1          | 0    | 54,083 | 5,000            | 10                     | 0  | 633          |
| 1982/83                          | 38,262       | 1.23       | 47,116               | 80           | 200          | 48,496        | 67.6          | 0    | 48,496 | 3,500            | 315                    | 0  | 200          |
| 1983/84                          | 41,244       | 1.46       | 60,097               | 850          | 220          | 58,227        | 79.4          | 0    | 58,227 | 6,000            | 560                    | 10 | 200          |
| 1984/85                          | 41,159       | 1.42       | 58,636               | 10           | 160          | 56,986        | 76.0          | 0    | 56,986 | 7,500            | 10                     | 10 | 200          |
| 1985/86*                         | 41,200       | 1.48       | 61,000               | 10           | 200          | 60,310        | 78.8          | 0    | 60,310 | 8,000            | 10                     | 5  | 200          |
| Nepal (July/June):               |              |            |                      |              |              |               |               |      |        |                  |                        |    |              |
| 1980/81                          | 1,175        | 1.40       | 1,641                | 6            | 45           | 1,602         | 106.9         | 0    | 1,602  | 0                | 9                      | 0  | 10           |
| 1981/82                          | 1,300        | 1.31       | 1,706                | 8            | 62           | 1,652         | 107.4         | 0    | 1,652  | 0                | 33                     | 0  | 43           |
| 1982/83                          | 1,263        | .97        | 1,220                | 50           | 0            | 1,270         | 80.5          | 0    | 1,270  | 0                | 25                     | 0  | 50           |
| 1983/84                          | 1,330        | 1.38       | 1,838                | 0            | 20           | 1,768         | 109.3         | 0    | 1,768  | 50               | 0                      | 0  | 20           |
| 1984/85                          | 1,377        | 1.31       | 1,804                | 0            | 50           | 1,754         | 105.8         | 0    | 1,798  | 0                | 0                      | 0  | 50           |
| 1985/86*                         | 1,391        | 1.34       | 1,867                | 0            | 25           | 1,842         | 108.3         | 0    | 1,773  | 0                | 0                      | 0  | 25           |
| Pakistan (July/June):            |              |            |                      |              |              |               |               |      |        |                  |                        |    |              |
| 1980/81                          | 1,933        | 1.62       | 3,123                | 0            | 1,163        | 1,981         | 23.1          | 0    | 1,981  | 229              | 0                      | 0  | 1,127        |
| 1981/82                          | 1,976        | 1.74       | 3,430                | 0            | 840          | 2,379         | 26.6          | 0    | 2,379  | 440              | 0                      | 0  | 794          |
| 1982/83                          | 1,978        | 1.74       | 3,445                | 0            | 1,146        | 2,250         | 24.4          | 0    | 2,250  | 489              | 0                      | 0  | 1,299        |
| 1983/84                          | 1,998        | 1.67       | 3,339                | 0            | 1,172        | 2,320         | 24.5          | 0    | 2,320  | 336              | 0                      | 0  | 1,050        |
| 1984/85                          | 1,998        | 1.66       | 3,315                | 0            | 836          | 2,400         | 24.7          | 0    | 2,400  | 415              | 0                      | 0  | 962          |
| 1985/86*                         | 1,850        | 1.60       | 2,960                | 0            | 1,000        | 2,200         | 21.9          | 0    | 2,200  | 175              | 0                      | 0  | 1,000        |
| Sri Lanka (January/December) 1/: |              |            |                      |              |              |               |               |      |        |                  |                        |    |              |
| 1980/81                          | 819          | 1.77       | 1,450                | 189          | 0            | 1,705         | 114.9         | 0    | 1,705  | 103              | 168                    | 0  | 0            |
| 1981/82                          | 819          | 1.79       | 1,469                | 168          | 0            | 1,644         | 108.9         | 0    | 1,644  | 96               | 217                    | 0  | 0            |
| 1982/83                          | 800          | 1.83       | 1,466                | 217          | 0            | 1,640         | 106.7         | 0    | 1,640  | 139              | 157                    | 0  | 0            |
| 1983/84                          | 777          | 2.17       | 1,688                | 157          | 0            | 1,750         | 111.8         | 0    | 1,750  | 234              | 40                     | 0  | 0            |
| 1984/85                          | 886          | 1.85       | 1,640                | 40           | 0            | 1,790         | 112.4         | 0    | 1,790  | 124              | 195                    | 0  | 0            |
| 1985/86*                         | 864          | 2.09       | 1,809                | 195          | 0            | 1,900         | 117.2         | 0    | 1,900  | 228              | 250                    | 0  | 0            |

\*Estimated.

1/ January/December of first year.

SOURCES: Official government data in each country; USDA estimates.

Appendix 3--Supply and use of coarse grain in South Asia

| Country                          | Area         | Yield      | Pro-<br>duc-<br>tion | Im-<br>ports | Ex-<br>ports | Disappearance |               |       |        | Ending<br>stocks | July/June trade |      |              |
|----------------------------------|--------------|------------|----------------------|--------------|--------------|---------------|---------------|-------|--------|------------------|-----------------|------|--------------|
|                                  |              |            |                      |              |              | Food          |               | Feed  | Total  |                  | Imports         |      | Ex-<br>ports |
|                                  |              |            |                      |              |              | Total         | Per<br>capita |       |        |                  | Total           | U.S. |              |
|                                  |              |            |                      |              |              |               |               |       |        |                  |                 |      |              |
| 1,000<br>ha.                     | Tons/<br>ha. | 1,000 tons | Kgs.                 | 1,000 tons   |              |               |               |       |        |                  |                 |      |              |
| Bangladesh (July/June):          |              |            |                      |              |              |               |               |       |        |                  |                 |      |              |
| 1980/81                          | 74           | .73        | 54                   | 3            | 0            | 49            | .6            | 8     | 57     | 0                | 3               | 0    | 0            |
| 1981/82                          | 72           | .71        | 51                   | 3            | 0            | 48            | .5            | 6     | 54     | 0                | 3               | 0    | 0            |
| 1982/83                          | 72           | .72        | 52                   | 3            | 0            | 48            | .5            | 7     | 55     | 0                | 1               | 0    | 0            |
| 1983/84                          | 71           | .73        | 52                   | 1            | 0            | 46            | .5            | 7     | 53     | 0                | 1               | 0    | 0            |
| 1984/85                          | 71           | .73        | 52                   | 0            | 0            | 46            | .5            | 6     | 52     | 0                | 0               | 0    | 0            |
| 1985/86*                         | 71           | .73        | 52                   | 0            | 0            | 46            | .5            | 6     | 52     | 0                | 0               | 0    | 0            |
| India (October/September):       |              |            |                      |              |              |               |               |       |        |                  |                 |      |              |
| 1980/81                          | 41,451       | .69        | 28,473               | 10           | 15           | 26,698        | 38.8          | 1,720 | 28,418 | 1,700            | 10              | 10   | 15           |
| 1981/82                          | 42,273       | .74        | 31,388               | 0            | 54           | 29,514        | 42.1          | 1,820 | 31,334 | 1,700            | 0               | 0    | 60           |
| 1982/83                          | 40,677       | .69        | 27,878               | 0            | 3            | 26,405        | 36.8          | 1,870 | 28,275 | 1,300            | 5               | 5    | 7            |
| 1983/84                          | 41,802       | .81        | 33,940               | 0            | 10           | 30,810        | 42.0          | 2,120 | 32,930 | 2,300            | 0               | 0    | 10           |
| 1984/85                          | 39,298       | .80        | 31,454               | 0            | 11           | 30,273        | 40.4          | 2,070 | 32,343 | 1,400            | 0               | 0    | 11           |
| 1985/86*                         | 38,852       | .77        | 29,842               | 0            | 5            | 28,377        | 37.1          | 2,060 | 30,437 | 800              | 0               | 0    | 5            |
| Nepal (July/June):               |              |            |                      |              |              |               |               |       |        |                  |                 |      |              |
| 1980/81                          | 597          | 1.50       | 898                  | 1            | 18           | 881           | 58.8          | 0     | 881    | 0                | 1               | 1    | 18           |
| 1981/82                          | 627          | 1.44       | 906                  | 0            | 16           | 890           | 57.9          | 0     | 890    | 0                | 0               | 0    | 16           |
| 1982/83                          | 606          | 1.44       | 873                  | 3            | 0            | 876           | 55.6          | 0     | 876    | 0                | 3               | 0    | 0            |
| 1983/84                          | 597          | 1.53       | 913                  | 0            | 0            | 913           | 56.5          | 0     | 913    | 0                | 0               | 0    | 0            |
| 1984/85                          | 731          | 1.33       | 975                  | 0            | 0            | 975           | 58.8          | 0     | 975    | 0                | 0               | 0    | 0            |
| 1985/86*                         | 767          | 1.34       | 1,029                | 0            | 0            | 1,029         | 60.5          | 0     | 1,029  | 0                | 0               | 0    | 0            |
| Pakistan (July/June):            |              |            |                      |              |              |               |               |       |        |                  |                 |      |              |
| 1980/81                          | 1,702        | .89        | 1,508                | 0            | 0            | 1,508         | 17.6          | 0     | 1,508  | 0                | 0               | 0    | 0            |
| 1981/82                          | 1,920        | .83        | 1,585                | 0            | 0            | 1,585         | 17.7          | 0     | 1,585  | 0                | 0               | 0    | 0            |
| 1982/83                          | 1,840        | .87        | 1,604                | 0            | 0            | 1,604         | 17.4          | 0     | 1,604  | 0                | 0               | 0    | 0            |
| 1983/84                          | 1,916        | .86        | 1,646                | 0            | 30           | 1,616         | 17.1          | 0     | 1,616  | 0                | 0               | 0    | 30           |
| 1984/85                          | 1,863        | .87        | 1,627                | 0            | 3            | 1,624         | 16.7          | 0     | 1,624  | 0                | 0               | 0    | 5            |
| 1985/86*                         | 1,846        | .89        | 1,646                | 0            | 30           | 1,616         | 16.1          | 0     | 1,616  | 0                | 0               | 0    | 30           |
| Sri Lanka (January/December) 1/: |              |            |                      |              |              |               |               |       |        |                  |                 |      |              |
| 1980/81                          | 24           | .63        | 15                   | 0            | 0            | 15            | 1.0           | 0     | 15     | 0                | 0               | 0    | 0            |
| 1981/82                          | 25           | .64        | 16                   | 0            | 0            | 16            | 1.1           | 0     | 16     | 0                | 0               | 0    | 0            |
| 1982/83                          | 25           | .64        | 16                   | 0            | 0            | 16            | 1.0           | 0     | 16     | 0                | 0               | 0    | 0            |
| 1983/84                          | 25           | .64        | 16                   | 16           | 0            | 32            | 2.0           | 0     | 32     | 0                | 16              | 0    | 0            |
| 1984/85                          | 25           | .64        | 16                   | 179          | 0            | 195           | 12.2          | 0     | 195    | 0                | 179             | 32   | 0            |
| 1985/86*                         | 25           | .64        | 16                   | 20           | 0            | 36            | 2.2           | 0     | 36     | 0                | 20              | 0    | 0            |

\*Estimated.

1/ January/December of first year.

SOURCES: Official government data in each country; USDA estimates.



Appendix 4--Supply and use of cotton in South Asia (August/July years)

| Country            | Area         | Yield        | Pro-<br>duc-<br>tion | Im-<br>ports | Ex-<br>ports | Disappearance |                   |       | Ending<br>stocks | U.S.<br>exports 1/ |
|--------------------|--------------|--------------|----------------------|--------------|--------------|---------------|-------------------|-------|------------------|--------------------|
|                    |              |              |                      |              |              | Use           | Loss              | Total |                  |                    |
|                    | 1,000<br>ha. | Kgs./<br>ha. |                      |              |              | 1,000         | 480-<br>lb. bales |       |                  |                    |
| <b>Bangladesh:</b> |              |              |                      |              |              |               |                   |       |                  |                    |
| 1980/81            | 8            | 163          | 6                    | 205          | 3            | 205           | 4                 | 209   | 36               | 25                 |
| 1981/82            | 17           | 282          | 22                   | 193          | 3            | 198           | 6                 | 204   | 44               | 76                 |
| 1982/83            | 20           | 196          | 18                   | 208          | 2            | 225           | 5                 | 230   | 38               | 62                 |
| 1983/84            | 17           | 192          | 15                   | 266          | 1            | 202           | 17                | 219   | 99               | 137                |
| 1984/85            | 13           | 184          | 11                   | 247          | 1            | 231           | 10                | 241   | 115              | 61                 |
| 1985/86*           | 13           | 234          | 14                   | 136          | 1            | 190           | 4                 | 194   | 70               | 65                 |
| <b>India:</b>      |              |              |                      |              |              |               |                   |       |                  |                    |
| 1980/81            | 7,823        | 176          | 6,319                | 0            | 528          | 6,418         | 73                | 6,491 | 1,532            | 0                  |
| 1981/82            | 7,987        | 186          | 6,807                | 39           | 273          | 5,985         | 0                 | 5,985 | 2,120            | 0                  |
| 1982/83            | 7,871        | 194          | 7,004                | 0            | 557          | 6,383         | 0                 | 6,383 | 2,184            | 0                  |
| 1983/84            | 7,765        | 171          | 6,086                | 0            | 276          | 6,614         | 0                 | 6,614 | 1,380            | 0                  |
| 1984/85            | 7,437        | 232          | 7,925                | 0            | 132          | 7,117         | 0                 | 7,117 | 2,056            | 0                  |
| 1985/86*           | 7,900        | 232          | 8,400                | 59           | 400          | 7,155         | 0                 | 7,155 | 2,960            | 0                  |
| <b>Pakistan:</b>   |              |              |                      |              |              |               |                   |       |                  |                    |
| 1980/81            | 2,108        | 341          | 3,300                | 2            | 1,490        | 2,042         | 118               | 2,160 | 235              | 1                  |
| 1981/82            | 2,215        | 343          | 3,494                | 5            | 1,097        | 2,238         | 158               | 2,396 | 241              | 1                  |
| 1982/83            | 2,263        | 364          | 3,781                | 4            | 1,273        | 2,450         | 150               | 2,600 | 153              | 1                  |
| 1983/84            | 2,221        | 214          | 2,188                | 279          | 377          | 2,030         | 120               | 2,150 | 93               | 127                |
| 1984/85            | 2,236        | 451          | 4,628                | 26           | 1,261        | 2,264         | 172               | 2,436 | 1,050            | 1                  |
| 1985/86*           | 2,366        | 525          | 5,700                | 4            | 3,000        | 2,350         | 160               | 2,510 | 1,244            | 2                  |

\* = Estimated.

1/ U.S. export data are for October/September years.

SOURCES: Official government data in each country; USDA estimates.

Appendix 5--Supply and use of oilseeds in South Asia (October/September) 1/

| Country     | Area         | Yield        | Pro-<br>duc-<br>tion   | Im-<br>ports | Ex-<br>ports | Crush  | Food<br>use | Feed,<br>seed &<br>waste | Total<br>use | Ending<br>stocks |
|-------------|--------------|--------------|------------------------|--------------|--------------|--------|-------------|--------------------------|--------------|------------------|
|             | 1,000<br>ha. | Kgs./<br>ha. | ----- 1,000 tons ----- |              |              |        |             |                          |              |                  |
| Bangladesh: |              |              |                        |              |              |        |             |                          |              |                  |
| 1980/81     | 248          | 625          | 155                    | 25           | 0            | 165    | 6           | 9                        | 180          | 7                |
| 1981/82     | 243          | 667          | 162                    | 18           | 0            | 161    | 5           | 15                       | 181          | 6                |
| 1982/83     | 242          | 653          | 158                    | 22           | 0            | 164    | 5           | 11                       | 180          | 6                |
| 1983/84     | 240          | 696          | 167                    | 20           | 0            | 169    | 3           | 11                       | 183          | 10               |
| 1984/85     | 243          | 712          | 173                    | 10           | 0            | 169    | 4           | 10                       | 183          | 10               |
| 1985/86*    | 246          | 740          | 182                    | 0            | 0            | 169    | 4           | 11                       | 184          | 8                |
| India:      |              |              |                        |              |              |        |             |                          |              |                  |
| 1980/81     | 25,780       | 463          | 11,943                 | 12           | 84           | 9,412  | 594         | 1,946                    | 11,951       | 200              |
| 1981/82     | 27,564       | 552          | 15,213                 | 5            | 58           | 11,848 | 795         | 2,317                    | 14,960       | 400              |
| 1982/83     | 26,128       | 499          | 13,036                 | 5            | 47           | 10,550 | 637         | 2,007                    | 13,194       | 200              |
| 1983/84     | 26,913       | 566          | 15,234                 | 5            | 70           | 11,899 | 801         | 2,069                    | 14,769       | 600              |
| 1984/85     | 27,704       | 593          | 16,437                 | 5            | 50           | 13,558 | 803         | 2,331                    | 16,692       | 300              |
| 1985/86*    | 27,705       | 551          | 15,272                 | 0            | 30           | 12,586 | 711         | 2,245                    | 15,542       | 0                |
| Pakistan:   |              |              |                        |              |              |        |             |                          |              |                  |
| 1980/81     | 2,590        | 676          | 1,750                  | 0            | 0            | 1,461  | 52          | 237                      | 1,750        | 0                |
| 1981/82     | 2,693        | 680          | 1,831                  | 0            | 0            | 1,520  | 66          | 245                      | 1,831        | 0                |
| 1982/83     | 2,754        | 728          | 2,006                  | 0            | 0            | 1,564  | 76          | 366                      | 2,006        | 0                |
| 1983/84     | 2,636        | 511          | 1,348                  | 0            | 0            | 1,086  | 80          | 182                      | 1,348        | 0                |
| 1984/85     | 2,675        | 875          | 2,340                  | 0            | 0            | 1,952  | 62          | 326                      | 2,340        | 0                |
| 1985/86*    | 2,811        | 997          | 2,803                  | 0            | 0            | 2,352  | 58          | 393                      | 2,803        | 0                |
| Sri Lanka:  |              |              |                        |              |              |        |             |                          |              |                  |
| 1980/81     | NA           | NA           | 128                    | 0            | 2            | 126    | 0           | 0                        | 126          | 4                |
| 1981/82     | NA           | NA           | 174                    | 0            | 3            | 168    | 0           | 0                        | 168          | 7                |
| 1982/83     | NA           | NA           | 138                    | 0            | 4            | 141    | 0           | 0                        | 141          | 0                |
| 1983/84     | NA           | NA           | 62                     | 0            | 2            | 59     | 0           | 0                        | 59           | 1                |
| 1984/85     | NA           | NA           | 240                    | 0            | 8            | 213    | 0           | 0                        | 213          | 20               |
| 1985/86*    | NA           | NA           | 230                    | 0            | 8            | 232    | 0           | 0                        | 232          | 10               |

\* = Estimated. NA = Not available.

1/ Coverage includes copra, cottonseed, flaxseed, peanuts, nigerseed, rapeseed, safflower, sesame, soybeans, and sunflowerseed.

SOURCES: Official government data in each country; USDA estimates.



## Appendix 6--Supply and use of vegetable oils in South Asia (October/September) 1/

| Country     | Pro-<br>duc-<br>tion | Imports                |      |      |       |       | Disappearance |       | Ending<br>stocks |               |  |
|-------------|----------------------|------------------------|------|------|-------|-------|---------------|-------|------------------|---------------|--|
|             |                      | Soybean                |      | Palm | Other | Total | Ex-<br>ports  | Total |                  | Per<br>capita |  |
|             |                      | Total                  | U.S. |      |       |       |               |       |                  |               |  |
|             |                      | ----- 1,000 tons ----- |      |      |       |       |               |       |                  |               |  |
| Bangladesh: |                      |                        |      |      |       |       |               |       |                  |               |  |
| 1980/81     | 56                   | 27                     | 25   | 101  | 12    | 140   | 0             | 161   | 1.8              | 53            |  |
| 1981/82     | 54                   | 37                     | 34   | 87   | 20    | 144   | 0             | 200   | 2.2              | 51            |  |
| 1982/83     | 55                   | 67                     | 24   | 72   | 25    | 164   | 0             | 207   | 2.2              | 63            |  |
| 1983/84     | 57                   | 66                     | 15   | 79   | 7     | 152   | 0             | 193   | 2.0              | 79            |  |
| 1984/85     | 57                   | 50                     | 14   | 160  | 20    | 230   | 0             | 233   | 2.4              | 133           |  |
| 1985/86*    | 57                   | 40                     | 16   | 210  | 25    | 275   | 50            | 258   | 2.6              | 157           |  |
| India:      |                      |                        |      |      |       |       |               |       |                  |               |  |
| 1980/81     | 2,668                | 639                    | 62   | 431  | 223   | 1,293 | 0             | 3,981 | 5.8              | 160           |  |
| 1981/82     | 3,392                | 460                    | 68   | 410  | 93    | 963   | 0             | 4,434 | 6.3              | 80            |  |
| 1982/83     | 2,974                | 537                    | 55   | 597  | 129   | 1,263 | 0             | 4,163 | 5.8              | 150           |  |
| 1983/84     | 3,376                | 808                    | 169  | 557  | 332   | 1,697 | 0             | 4,833 | 6.6              | 390           |  |
| 1984/85     | 3,801                | 398                    | 63   | 728  | 229   | 1,355 | 0             | 5,206 | 6.9              | 340           |  |
| 1985/86*    | 3,488                | 225                    | 50   | 760  | 160   | 1,145 | 0             | 4,773 | 6.2              | 200           |  |
| Pakistan:   |                      |                        |      |      |       |       |               |       |                  |               |  |
| 1980/81     | 225                  | 214                    | 126  | 226  | 15    | 455   | 0             | 693   | 8.1              | 62            |  |
| 1981/82     | 240                  | 291                    | 260  | 273  | 9     | 573   | 0             | 808   | 9.0              | 67            |  |
| 1982/83     | 256                  | 306                    | 237  | 349  | 8     | 663   | 0             | 917   | 9.9              | 69            |  |
| 1983/84     | 190                  | 301                    | 216  | 328  | 1     | 630   | 0             | 812   | 8.5              | 77            |  |
| 1984/85     | 289                  | 174                    | 168  | 487  | 4     | 665   | 0             | 956   | 9.8              | 75            |  |
| 1985/86*    | 340                  | 230                    | 230  | 550  | 1     | 781   | 0             | 1,116 | 11.3             | 80            |  |
| Sri Lanka:  |                      |                        |      |      |       |       |               |       |                  |               |  |
| 1980/81     | 77                   | 1                      | --   | 12   | 0     | 13    | 18            | 72    | 4.9              | 0             |  |
| 1981/82     | 103                  | 1                      | 1    | 3    | 0     | 4     | 39            | 68    | 4.5              | 0             |  |
| 1982/83     | 83                   | 1                      | 1    | 8    | 0     | 9     | 34            | 58    | 3.8              | 0             |  |
| 1983/84     | 37                   | 1                      | 1    | 5    | 0     | 6     | 12            | 31    | 2.0              | 0             |  |
| 1984/85     | 130                  | 0                      | --   | 3    | 0     | 3     | 66            | 67    | 4.2              | 0             |  |
| 1985/86*    | 140                  | 0                      | --   | 11   | 0     | 11    | 65            | 86    | 5.3              | 0             |  |

\* = Estimated. -- = Less than 500 tons.

1/ Coverage includes coconut, cottonseed, flaxseed, peanut, nigerseed, palm, rapeseed, safflower, sesame, soybeans, and sunflower oil.

SOURCES: Official government data in each country; USDA estimates.

Appendix 7—U.S. agricultural exports to South Asia by country and major commodity, U.S. fiscal years (October/September)

|                     | Bangladesh |       |         | India   |         |       | Nepal |      |      | Pakistan |       |       | Sri Lanka |       |       | Total   |         |         |
|---------------------|------------|-------|---------|---------|---------|-------|-------|------|------|----------|-------|-------|-----------|-------|-------|---------|---------|---------|
|                     | 1983       | 1984  | 1985    | 1983    | 1984    | 1985  | 1983  | 1984 | 1985 | 1983     | 1984  | 1985  | 1983      | 1984  | 1985  | 1983    | 1984    | 1985    |
| 1,000 tons          |            |       |         |         |         |       |       |      |      |          |       |       |           |       |       |         |         |         |
| Animals & products  | NA         | NA    | NA      | NA      | NA      | NA    | NA    | NA   | NA   | NA       | NA    | NA    | NA        | NA    | NA    | NA      | NA      | NA      |
| Nonfat dry milk     | .0         | .0    | .0      | .2      | 21.1    | 6.8   | .7    | 1.7  | 1.8  | 7.9      | 7.6   | 11.0  | 2.3       | 5.4   | 1.2   | 11.0    | 35.7    | 20.8    |
| Tallow, inedible    | 1.3        | .0    | .0      | 45.2    | .0      | .1    | .0    | .0   | .0   | 82.8     | 99.5  | 80.2  | .0        | .0    | .0    | 129.3   | 99.5    | 80.3    |
| Grains & prep.      | NA         | NA    | NA      | NA      | NA      | NA    | NA    | NA   | NA   | NA       | NA    | NA    | NA        | NA    | NA    | NA      | NA      | NA      |
| Wheat               | 803.2      | 600.3 | 1,072.8 | 3,934.6 | 1,065.8 | 49.8  | 7.0   | 2.3  | .0   | 280.3    | 173.9 | 450.8 | 208.1     | 262.0 | 169.7 | 5,233.2 | 2,104.4 | 1,743.0 |
| Wheat flour         | .0         | .0    | .0      | .0      | .0      | .0    | .9    | 1.5  | .5   | .0       | .0    | .0    | .0        | 5.6   | 3.0   | 6.6     | 8.0     | 3.6     |
| Bulgur wheat        | .0         | .0    | .0      | 149.8   | 123.5   | 99.4  | .0    | .0   | .0   | .0       | .0    | .0    | .0        | .0    | .0    | 149.8   | 123.5   | 99.4    |
| Rice                | 35.4       | 55.7  | 80.3    | 5.2     | 4.8     | 8.8   | .0    | .0   | .0   | .0       | .0    | .0    | .0        | .0    | .0    | 40.6    | 60.4    | 89.1    |
| Feed grains         | .0         | .0    | .0      | 2.2     | .0      | .0    | .0    | .0   | .0   | .0       | .0    | .0    | .0        | .0    | .0    | 31.6    | 2.2     | 31.6    |
| Blended food prod.  | .0         | .0    | .0      | 49.3    | 76.7    | 71.3  | .5    | .0   | 3.5  | .0       | .0    | .0    | 5.3       | 5.8   | 5.2   | 55.1    | 82.6    | 80.0    |
| Fruits & prep.      | NA         | NA    | NA      | NA      | NA      | NA    | NA    | NA   | NA   | NA       | NA    | NA    | NA        | NA    | NA    | NA      | NA      | NA      |
| Nuts & prep.        | NA         | NA    | NA      | NA      | NA      | NA    | NA    | NA   | NA   | NA       | NA    | NA    | NA        | NA    | NA    | NA      | NA      | NA      |
| Vegetables & prep.  | NA         | NA    | NA      | NA      | NA      | NA    | NA    | NA   | NA   | NA       | NA    | NA    | NA        | NA    | NA    | NA      | NA      | NA      |
| Pulses              | .0         | .0    | .0      | 12.0    | 22.6    | 26.2  | .0    | .2   | .0   | .0       | .0    | .0    | .0        | .0    | .0    | 12.0    | 22.8    | 26.2    |
| Oilseeds & prod.    | NA         | NA    | NA      | NA      | NA      | NA    | NA    | NA   | NA   | NA       | NA    | NA    | NA        | NA    | NA    | NA      | NA      | NA      |
| Oilcake & meal      | .0         | .0    | .0      | .0      | .0      | .0    | .0    | .0   | .0   | .0       | .0    | .0    | .0        | .0    | .0    | .0      | .0      | .0      |
| Oils & waxes        | 23.7       | 14.9  | 14.3    | 55.0    | 170.2   | 62.8  | .0    | .1   | .1   | 236.7    | 216.1 | 168.4 | 1.0       | .9    | .4    | 316.4   | 402.2   | 246.1   |
| Soybean oil         | 23.7       | 14.9  | 14.3    | 54.9    | 169.4   | 62.8  | .0    | .1   | .1   | 236.7    | 216.1 | 168.4 | 1.0       | .9    | .4    | 316.3   | 401.4   | 246.1   |
| Tobacco, unmanuf.   | .1         | .1    | .0      | .0      | .0      | .0    | .1    | .0   | .0   | .2       | .2    | .2    | .2        | .0    | .0    | .4      | .3      | .2      |
| Cotton, ex. lint.   | 13.6       | 29.9  | 13.7    | .0      | .0      | .1    | .0    | .0   | .0   | .1       | 27.6  | .3    | .0        | .4    | .8    | 13.7    | 57.8    | 14.9    |
| Essential oils      | .0         | .0    | .0      | .2      | .2      | .2    | .0    | .0   | .0   | .0       | .0    | .0    | .0        | .0    | .0    | .3      | .2      | .2      |
| Seeds, fld. & gard. | .0         | .0    | .0      | .0      | .0      | .0    | .0    | .0   | .0   | .1       | .3    | .1    | .0        | .0    | .0    | .1      | .3      | .1      |
| Other veg. prod.    | NA         | NA    | NA      | NA      | NA      | NA    | NA    | NA   | NA   | NA       | NA    | NA    | NA        | NA    | NA    | NA      | NA      | NA      |
| Million dollars     |            |       |         |         |         |       |       |      |      |          |       |       |           |       |       |         |         |         |
| Total               | 153.2      | 157.1 | 205.4   | 762.1   | 375.6   | 129.4 | 2.5   | 2.6  | 2.6  | 214.8    | 285.4 | 229.0 | 37.0      | 46.3  | 33.9  | 1,169.6 | 886.9   | 600.3   |
| Animals & prod.     | .9         | .1    | .0      | 19.9    | 14.9    | 5.3   | .4    | 1.0  | 1.1  | 39.7     | 55.1  | 44.9  | 2.2       | 3.7   | 1.0   | 63.1    | 74.7    | 52.3    |
| Nonfat dry milk     | .0         | .0    | .0      | .1      | 12.6    | 4.1   | .4    | 1.0  | 1.1  | 4.8      | 4.5   | 6.4   | 1.3       | 3.2   | .7    | 6.6     | 21.4    | 12.3    |
| Tallow, inedible    | .8         | .0    | .0      | 16.7    | .0      | .1    | .0    | .0   | .0   | 33.0     | 48.9  | 37.7  | .0        | .0    | .0    | 50.5    | 48.9    | 37.8    |
| Grains & prep.      | 121.0      | 99.2  | 175.6   | 699.2   | 221.2   | 53.2  | 1.6   | 1.1  | 1.2  | 43.2     | 25.1  | 59.8  | 34.3      | 40.7  | 31.2  | 899.2   | 387.3   | 321.0   |
| Wheat               | 105.0      | 83.1  | 149.1   | 649.9   | 167.7   | 7.2   | 1.2   | .3   | .0   | 43.1     | 25.0  | 59.7  | 30.5      | 37.1  | 25.1  | 829.7   | 313.2   | 241.1   |
| Wheat flour         | .0         | .0    | .0      | .0      | .0      | .0    | .2    | .3   | .1   | .0       | .0    | .0    | 1.2       | 1.5   | .7    | 1.4     | 1.9     | .8      |
| Bulgur wheat        | .0         | .0    | .0      | 32.2    | 25.5    | 21.3  | .0    | .0   | .0   | .0       | .0    | .0    | .0        | .0    | .0    | 32.2    | 25.5    | 21.3    |
| Rice                | 16.0       | 16.1  | 26.5    | 1.6     | 1.4     | 2.3   | .0    | .0   | .0   | .0       | .0    | .0    | .0        | .0    | .0    | 17.6    | 17.5    | 28.8    |
| Feed grains         | .0         | .0    | .0      | .3      | .0      | .0    | .0    | .0   | .0   | .0       | .0    | .0    | .0        | .0    | .0    | .3      | .0      | .3      |
| Blended food prod.  | .0         | .0    | .0      | 14.7    | 26.4    | 22.3  | .2    | .4   | 1.1  | .0       | .0    | .0    | .2        | 2.0   | 1.7   | 15.0    | 28.9    | 25.1    |
| Fruits & prep.      | .0         | .0    | .0      | .1      | .1      | .5    | .0    | .0   | .0   | .0       | .0    | .0    | .0        | .1    | .0    | .1      | .2      | .5      |
| Nuts & prep.        | .0         | .0    | .0      | 4.4     | 4.4     | 6.2   | .0    | .0   | .2   | .0       | .0    | .0    | .0        | .0    | .0    | 4.5     | 4.5     | 6.4     |
| Vegetables & prep.  | .0         | .1    | .0      | 4.9     | 6.8     | 8.1   | .0    | .5   | .0   | .2       | .0    | .2    | .0        | .1    | .0    | 5.2     | 7.5     | 8.3     |
| Pulses              | .0         | .0    | .0      | 3.7     | 6.6     | 7.9   | .0    | .0   | .0   | .0       | .0    | .0    | .0        | .0    | .0    | 3.7     | 6.6     | 7.9     |
| Oilseeds & prod.    | 10.9       | 9.5   | 9.8     | 32.5    | 126.9   | 47.2  | .0    | .0   | .1   | 127.6    | 155.2 | 119.4 | .0        | 1.0   | .4    | 171.0   | 292.7   | 176.8   |
| Oilcake & meal      | .0         | .0    | .0      | .0      | .0      | .0    | .0    | .0   | .0   | 1.6      | .7    | .7    | .0        | .0    | .0    | 1.6     | .7      | .7      |
| Oils & waxes        | 10.9       | 9.5   | 9.8     | 32.5    | 126.9   | 47.1  | .0    | .0   | .1   | 125.8    | 154.3 | 118.6 | .0        | .8    | .3    | 169.2   | 291.6   | 175.9   |
| Soybean             | 10.9       | 9.5   | 9.8     | 32.4    | 126.3   | 47.1  | .0    | .0   | .1   | 125.8    | 154.3 | 118.6 | .0        | .8    | .3    | 169.1   | 291.0   | 175.9   |
| Tobacco, unmanuf.   | .6         | .5    | .0      | .2      | .2      | .0    | .5    | .0   | .0   | 1.8      | 2.1   | 1.9   | .5        | .0    | .0    | 3.7     | 2.8     | 1.9     |
| Cotton, ex. lint.   | 19.5       | 47.5  | 19.7    | .0      | .0      | .1    | .0    | .0   | .0   | .3       | 45.6  | .7    | .0        | .6    | 1.0   | 19.8    | 93.6    | 21.5    |
| Essential oils      | .0         | .0    | .0      | .5      | .4      | .4    | .0    | .0   | .0   | .0       | .0    | .0    | .0        | .0    | .0    | .6      | .5      | .5      |
| Seeds, fld. & gard. | .0         | .0    | .0      | .0      | .0      | .1    | .0    | .0   | .0   | .2       | .5    | .4    | .0        | .1    | .0    | .2      | .6      | .5      |
| Other veg. prod.    | .3         | .2    | .3      | .3      | .5      | 8.4   | .0    | .0   | .0   | 1.7      | 1.8   | 1.7   | .0        | .0    | .1    | 2.3     | 2.6     | 10.5    |

NA = Not applicable.

SOURCE: U.S. Department of Commerce, Bureau of the Census.





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